YEC FI
MATCHING SYSTEM Ver.1.20
MANUAL

The Performance Edge
for excellent riders

YEC
RACING PARTS

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1 Introduction

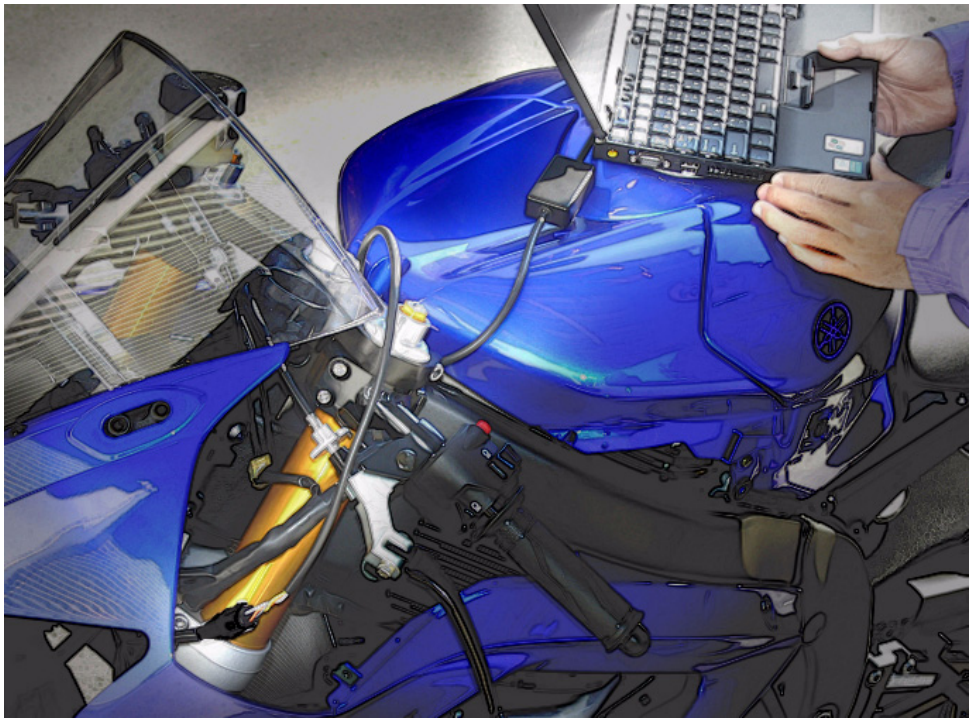
1–1 Objective

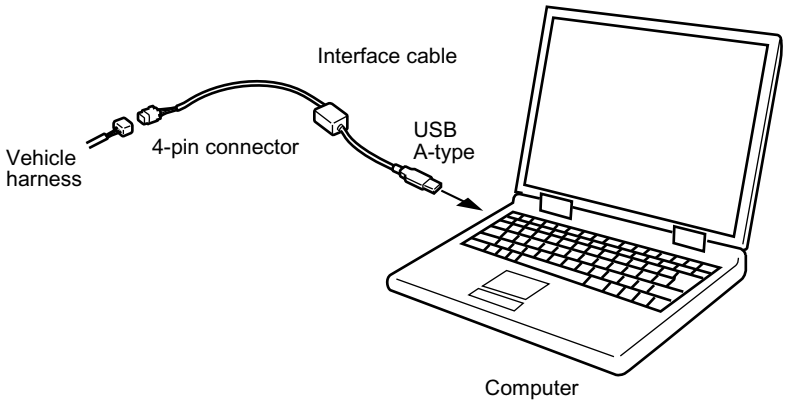
This in an instruction manual on the YEC FI Matching system (YMS)

1–2 Recommended operation environment for the personal computer

- CPU : Pentium 500 MHz equivalent or higher
- Memory : 256 MB or above
- OS : Windows XP US edition, Japanese language edition
- Recommended monitor resolution : 1024 x 768 or higher

1–3 Example of connecting the personal computer





1–4 Precautions on using the interface cable

- Avoid directly touching the end of the connector or storing it in a place where static electricity is easily generated.
- Using this system in a place where static electricity or a strong magnetic field is generated or close to machinery that generates a lot of electrical noise can lead to malfunction. Avoid use in such places.

1–5 Installing method

1–5–1 File structure

As base data folder, prepare YMS_Data folder

1–5–2 Installing procedures

When YMS_SETUP.exe is executed, setup program starts and Fig. 1. Welcome screen is shown.

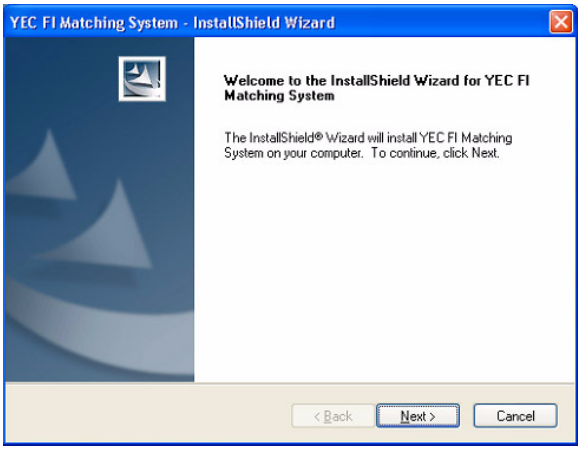

YEC FI Matching System - InstallShield Wizard
Welcome to the InstallShield Wizard for YEC FI Matching System
The InstallShield® Wizard will install YEC FI Matching System on your computer. To continue, click Next.
< Back
Next >
Cancel

Fig. 1: Welcome

Select [Next] and Fig. 2., Product License Agreement screen is shown.

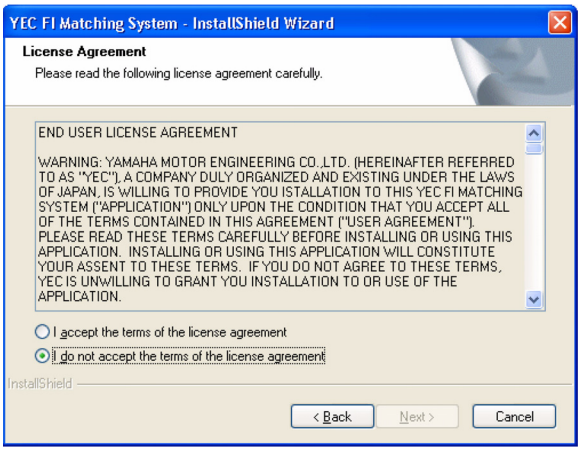

YEC FI Matching System - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
END USER LICENSE AGREEMENT
WARNING: YAMAHA MOTOR ENGINEERING CO.,LTD. (HEREINAFTER REFERRED TO AS "YEC"), A COMPANY DULY ORGANIZED AND EXISTING UNDER THE LAWS OF JAPAN, IS WILLING TO PROVIDE YOU ISTALLATION TO THIS YEC FI MATCHING SYSTEM ("APPLICATION") ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS AGREEMENT ("USER AGREEMENT"). PLEASE READ THESE TERMS CAREFULLY BEFORE INSTALLING OR USING THIS APPLICATION. INSTALLING OR USING THIS APPLICATION WILL CONSTITUTE YOUR ASSENT TO THESE TERMS. IF YOU DO NOT AGREE TO THESE TERMS, YEC IS UNWILLING TO GRANT YOU INSTALLATION TO OR USE OF THE APPLICATION.
I accept the terms of the license agreement
I do not accept the terms of the license agreement
InstallShield
< Back
Next >
Cancel

Fig. 2: Product License Agreement

[Select [Next] and Fig. 3, Registering of customer's information and serial No. certification screen is shown.
For [User name] and [Company name] setting information is acquired by default from the OS while the [Serial Number.] given on the booklet in the CD-ROM package is inputted.
Neither item may be omitted. Upon inputting all items, gray-out of [Next] is released and selecting may be made.

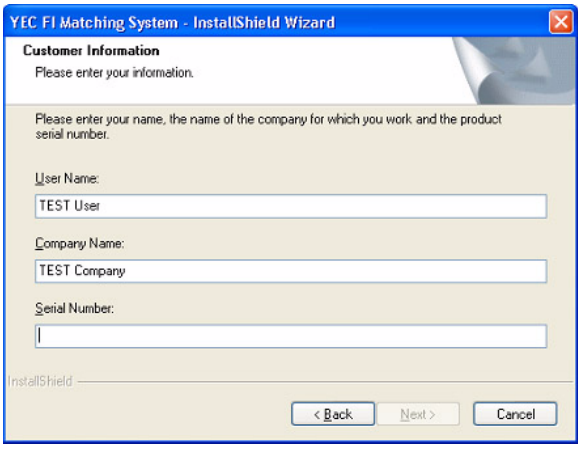


Fig. 3:
Registering of customer's information and serial No. certification

Click [Next] and Fig. 4, Selecting of the installing folder screen is shown.

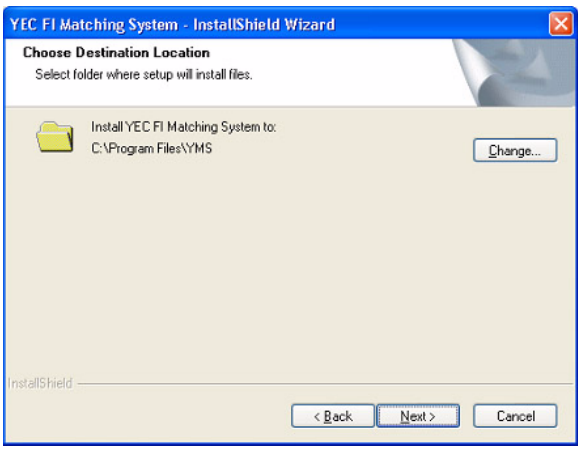


Fig. 4: Selecting of the installing folder

Select the destination folder in which the system is to be installed. The default value is "\Program Files \YMS".
Select [NEXT] and Fig. 5, Selecting of base data folder screen is shown.
Specify folder Path optionally by [Path] or specify existing folder by [Directories].

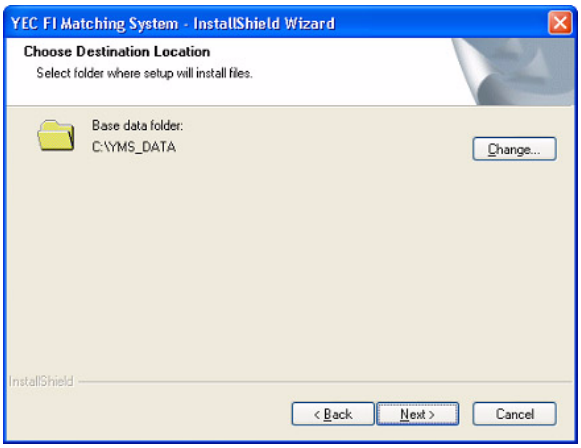


Fig. 5: Selecting of base data folder

Select the base data folder. The default value is "\YMS_Data".
When [Change] button is pressed, the Selecting of folder screen is shown.
Select [NEXT] and Fig. 6, Installation confirming screen is shown.

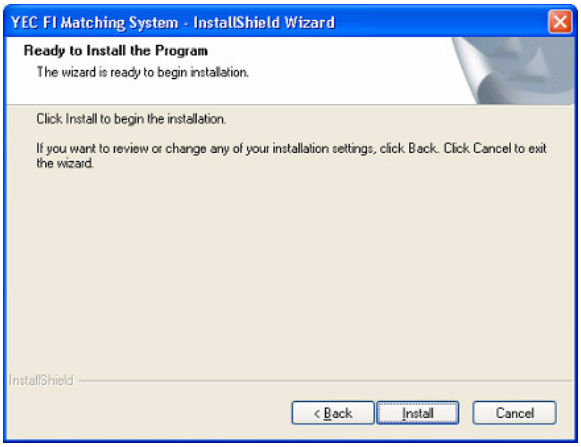

YEC FI Matching System - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Fig. 6: Installation confirmation.

Select [Install] and installation starts. Upon finishing installation, Fig. 7 Setup completion screen is shown.

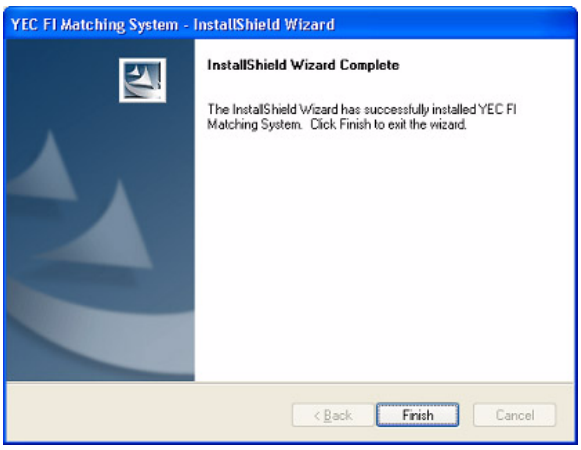

YEC FI Matching System - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed YEC FI Matching System. Click Finish to exit the wizard.
< Back
Finish
Cancel

Fig. 7: Set up completion

When [Finish] is pressed, setup in completed. Upon finishing setup, "YEC FI Matching System" shortcut is displayed on desktop and on start menu. Program maybe started from this shortcut.

1–6 Copy of base data

1–6–1 Copy procedures

Copy the base data stored in the installed CD to “C:\YMS_DATA” manually.

Base data

Model year	Model	Name of base data	KIT ECU
2006	YZF-R6	R6-06_BaseData_00.ycz	2C0-8591A-70
2007	YZF-R6	R6-07_BaseData_00.ycz	2C0-8591A-71
2008	YZF-R6	R6-08_BaseData_00.ycz	2C0-8591A-80
2009	YZF-R6	R6-09_BaseData_00.ycz	2C0-8591A-90
2010	YZF-R6	R6-10_BaseData_00.ycz	2C0-8591A-91
2011	YZF-R6	R6-11_BaseData_00.ycz	2C0-8591A-92
2007	YZF-R1	R1-07_BaseData_00.ycz	4C8-8591A-70
2008	YZF-R1	R1-08_BaseData_00.ycz	4C8-8591A-80
2009	YZF-R1	R1-09_BaseData_00.ycz	14B-8591A-70
2010	YZF-R1	R1-10_BaseData_00.ycz	14B-8591A-71
2011	YZF-R1	R1-11_BaseData_00.ycz	14B-8591A-72

CAUTION:

Any combination of base data and ECU not shown above will generate an error.
Always use one of the above combinations.

1–7 Installing the USB driver

1–7–1 Before installation

Installation of the USB driver is required when connecting the interface cable to your computer for the first time. Connection to the ECU is not required when installing the driver.

* There are two installation methods.
(1) Install from the CD.
(2) If you cannot use the CD when you connect the interface cable for the first time, copy the driver files from the CD onto the computer and then specify the driver files to install them.
The driver files are in the “KITUSBCDM 2.02.04 FTDI DRIVER” folder on the CD. Copy the whole folder onto the computer.

* The appearance of screens may differ depending the type of PC in use.

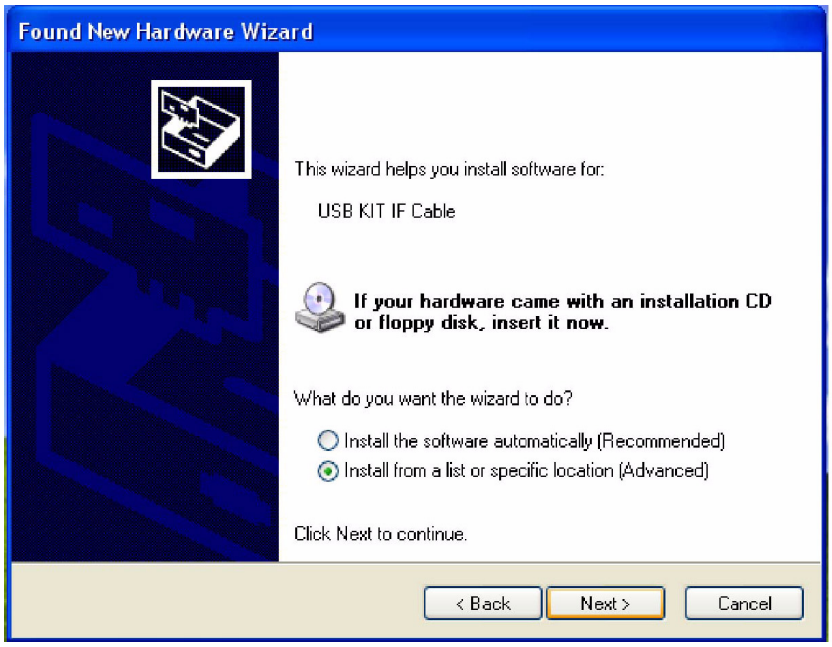
1–7–2 Installation Procedure (Installing from the CD)

(1) Connect the interface cable to the USB port of the computer.
After connecting the cable, an icon and message appear in the computer’s task bar.

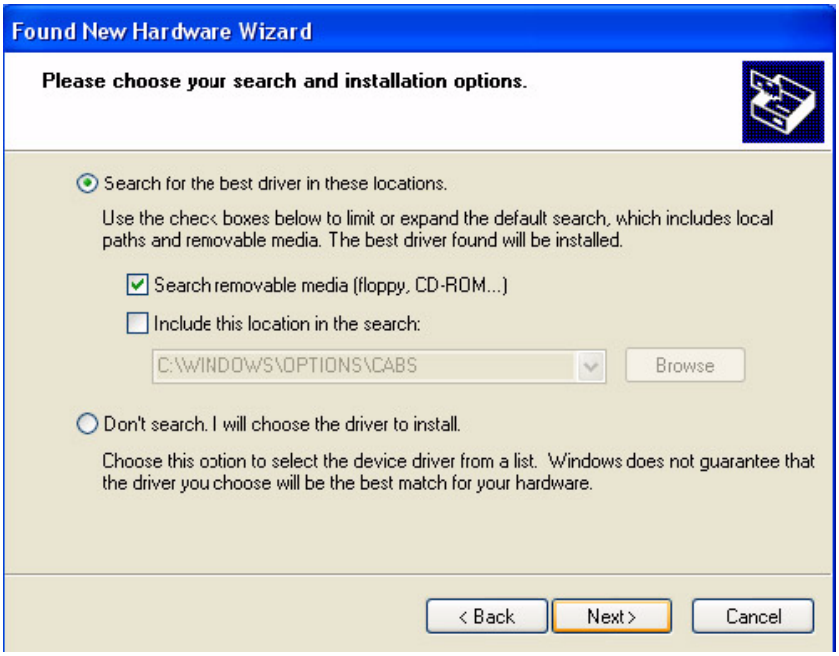
(2) Insert the CD in the CD drive. When the “Found New Hardware Wizard” screen appears and asks “Can Windows connect to Windows Update to search for software?” select “No, not this time” and click “Next”.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

(3) Check “Install from a list or specific location” and click “Next”.

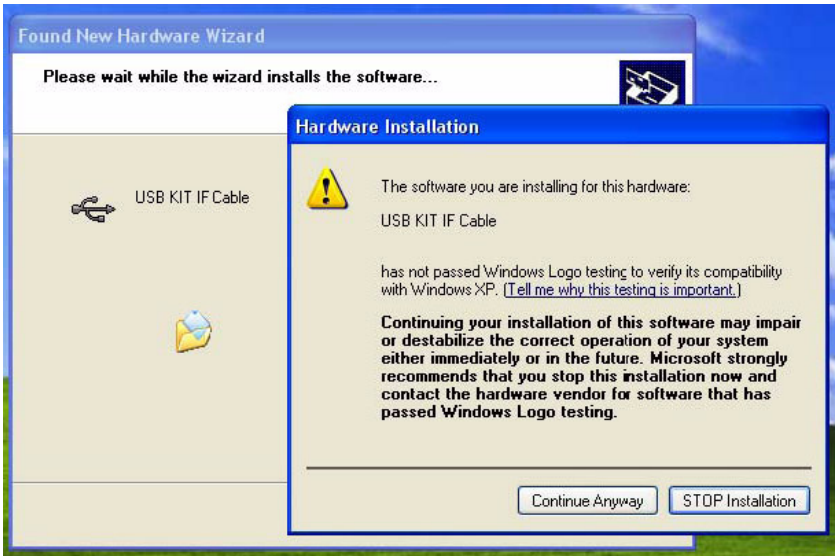

Found New Hardware Wizard
This wizard helps you install software for:
USB KIT IF Cable
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

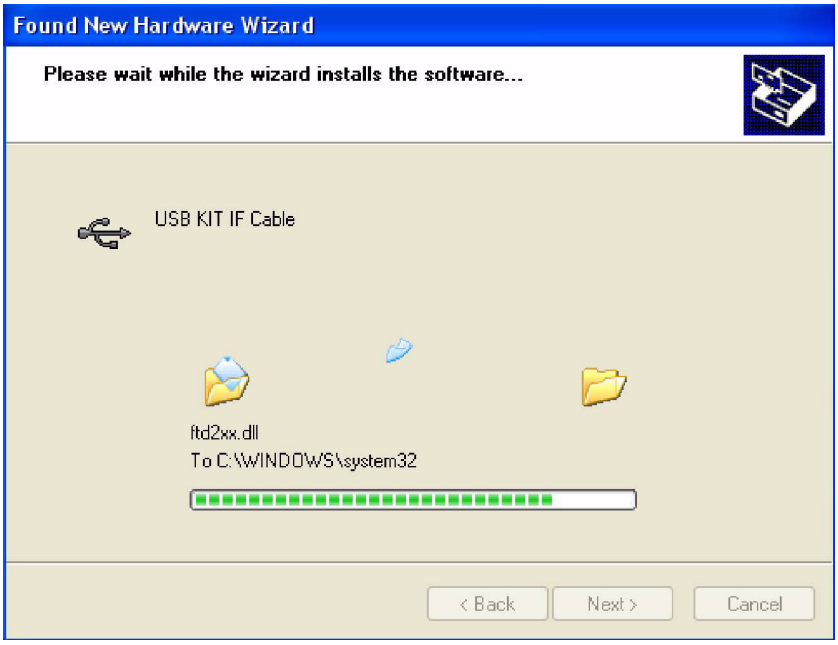
(4) Check “Search for the best driver in these locations” and “Search removable media (floppy, CD-ROM...)” and then click “Next”.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\WINDOWS\OPTIONS\CABS
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

* When installing from driver files copied onto your computer, check “Include this location in the search” and select the folder where the files are saved.

(5) If the following screen appears, click “Continue Anyway”.


Found New Hardware Wizard
Please wait while the wizard installs the software...
USB KIT IF Cable
Hardware Installation
The software you are installing for this hardware:
USB KIT IF Cable
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation



(6) When the “Completing the Found New Hardware Wizard” screen appears, click “Finish”.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
USB KIT IF Cable
Click Finish to close the wizard.
< Back
Finish
Cancel

Installation of the USB driver is now complete.

After clicking “Finish”, please wait. Installation of the serial port driver will soon start.

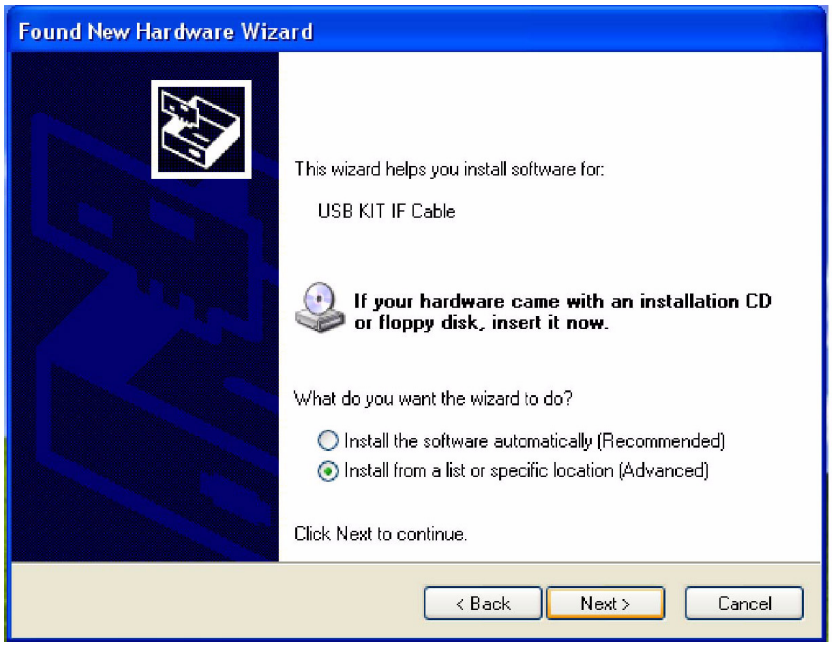
(7) Serial port driver installation

After the USB driver is installed, the following message appears in the task bar.

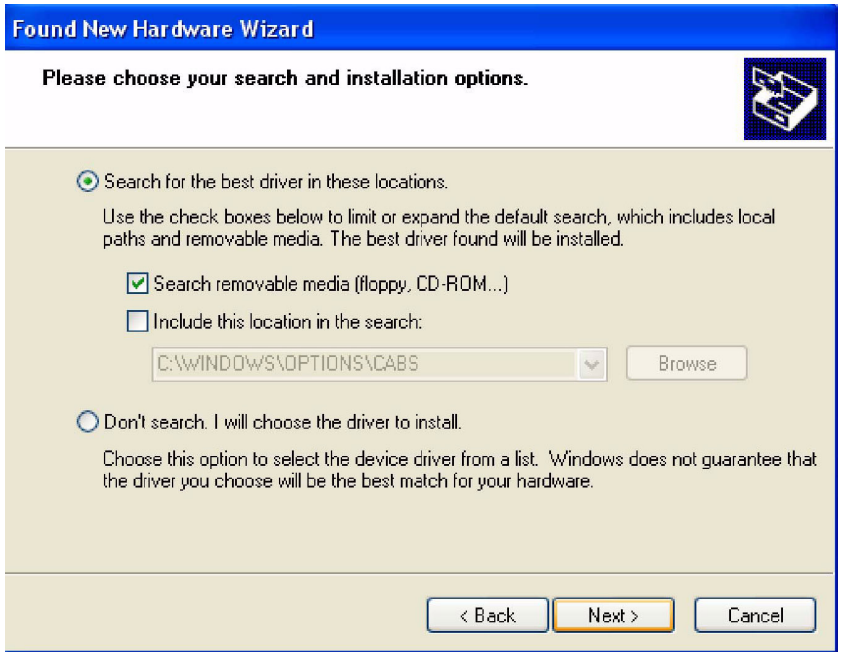
(8) When the “Found New Hardware Wizard” screen appears, check “No, not this time” and click “Next”.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this :ime only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

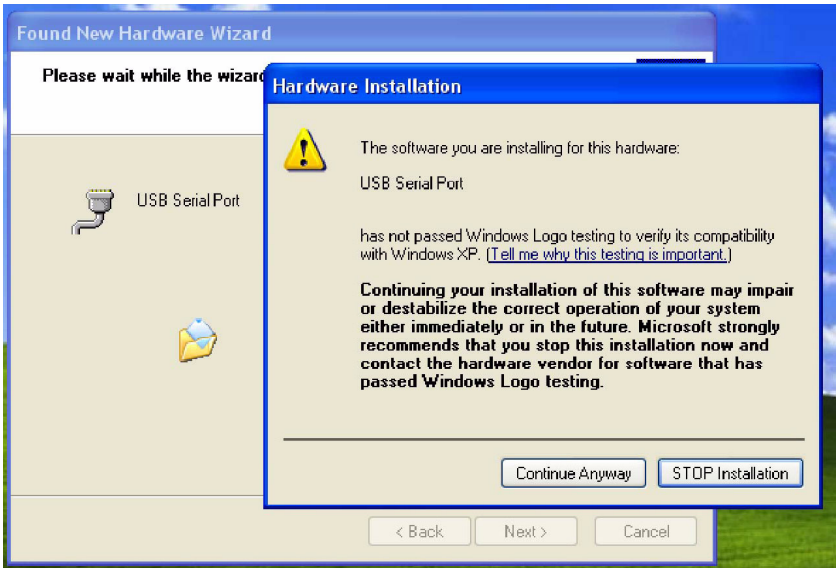
(9) Check “Install from a list or specific location” and click “Next”.


Found New Hardware Wizard
This wizard helps you install software for:
USB KIT IF Cable
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

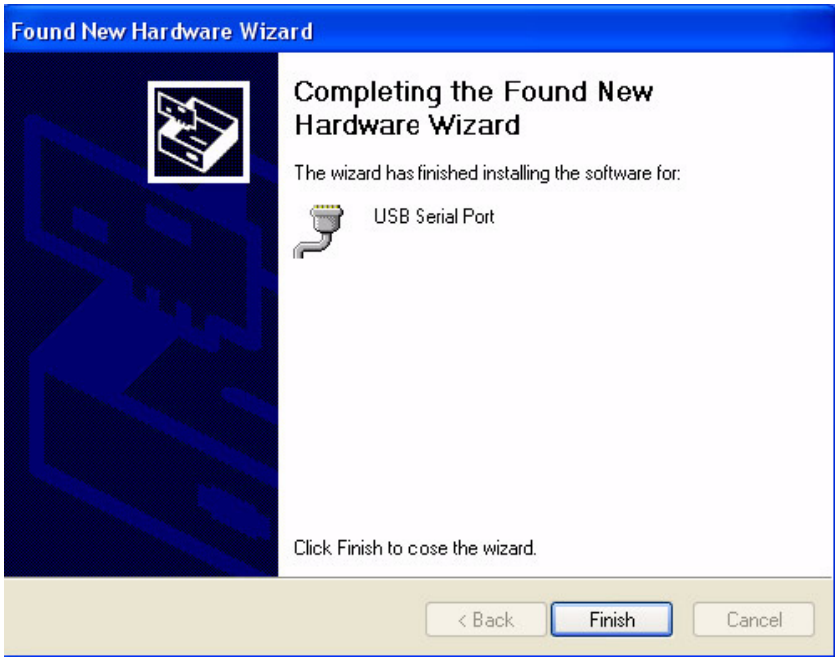
(10) Check “Search for the best driver in these locations” and “Search removable media (floppy, CD-ROM...)” and then click “Next”.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\WINDOWS\OPTIONS\CABS
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

(11) If the following screen appears, click “Continue Anyway”.


Found New Hardware Wizard
Please wait while the wizard
USB Serial Port
Hardware Installation
The software you are installing for this hardware:
USB Serial Port
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation
< Back
Next >
Cancel

(12) When the “Completing the Found New Hardware Wizard” screen appears, click “Finish”.



All installation is now complete.

1–7–3 How to Change the COM Port

When two or more devices using serial ports are installed on a computer, the COM ports increase. (COM4, 5, 6...)

If you want to select an optional COM number, you can change it with the device manager.

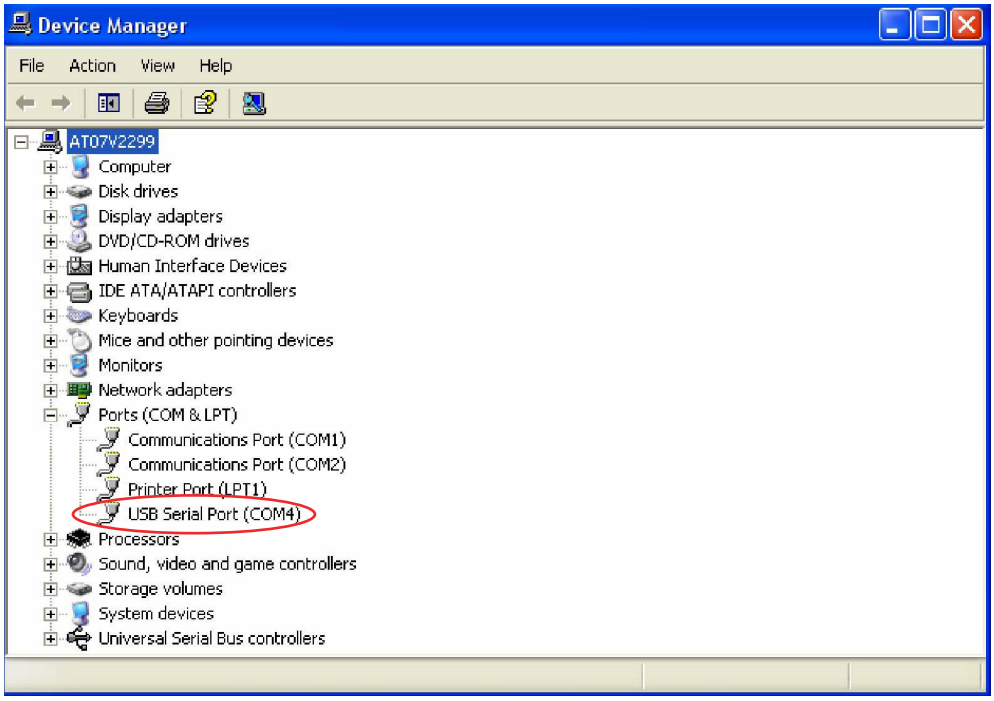
Changing procedure

(1) Connect the interface cable.

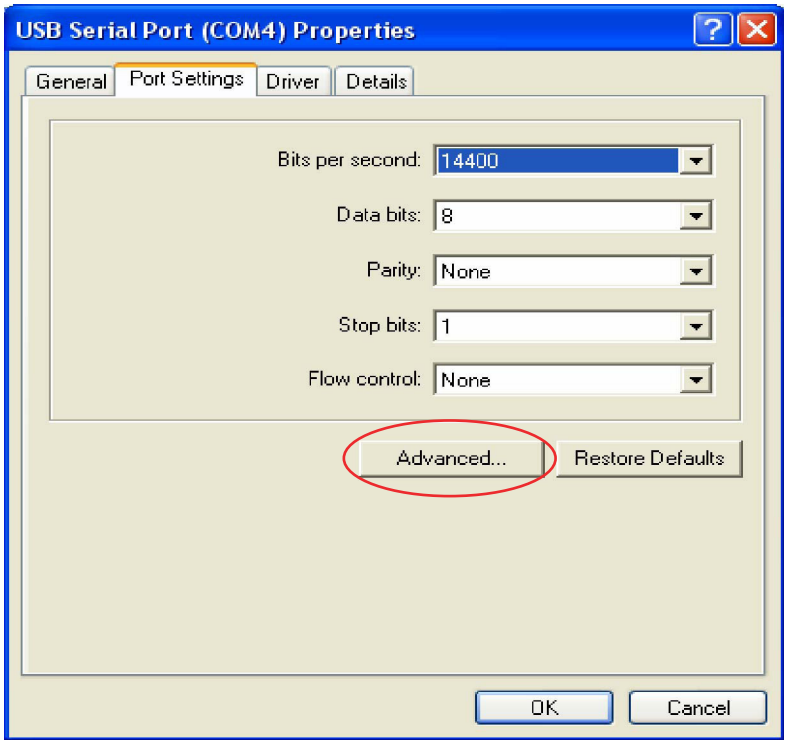
(2) Right click on “My Computer” and open “Properties”.

(3) In “Properties”, open “Hardware” and “Device Manager”.

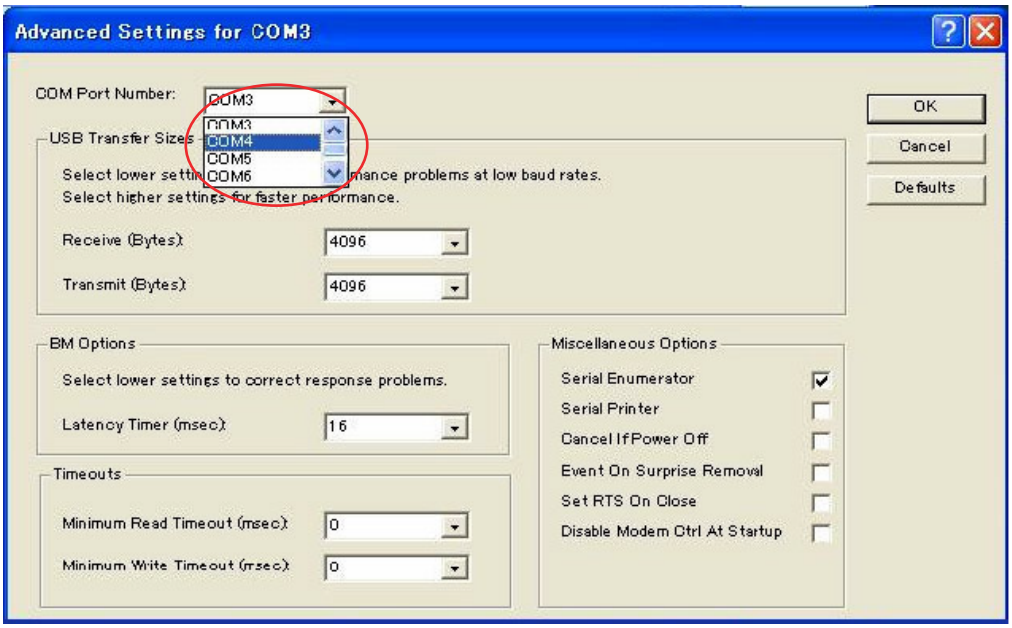
(4) Open “Ports (COM and LPT)”, select the desired serial port and right click to open “Properties”.



(5) Select “Port Settings” and click “Advanced”.



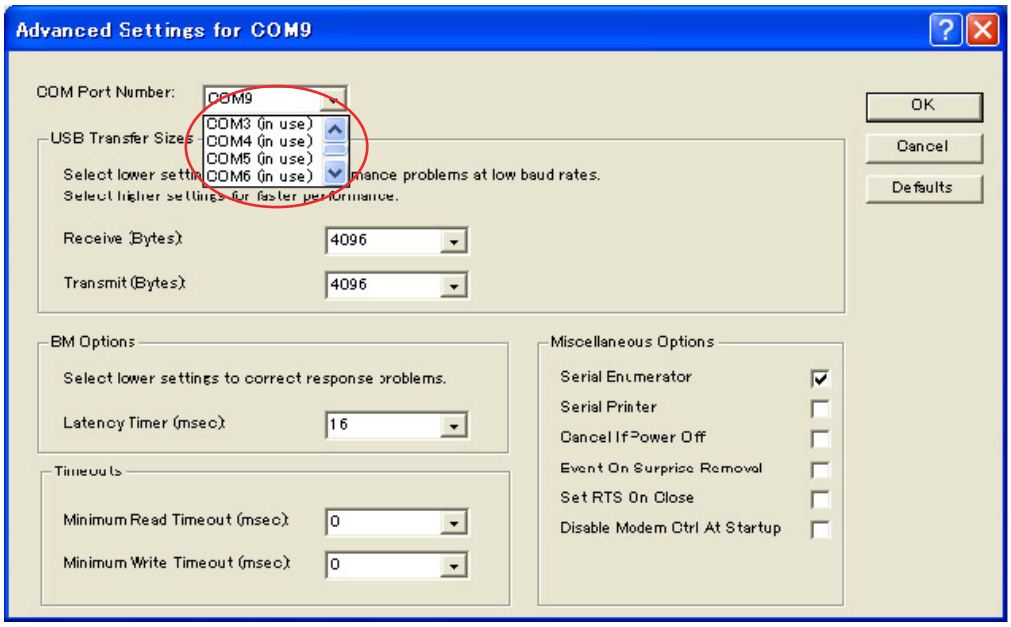
(6) Select the desired COM port in “COM Port Number” and click “OK”.



Close the Device Manager and reopen it. The COM number is now changed.

CAUTION:

In the above screen, some COM numbers may be marked “in use”.
These are COM numbers that have been registered once to another device.
Selecting one of them now will write over the existing setting, so you may have to reset the original device when you next use it.

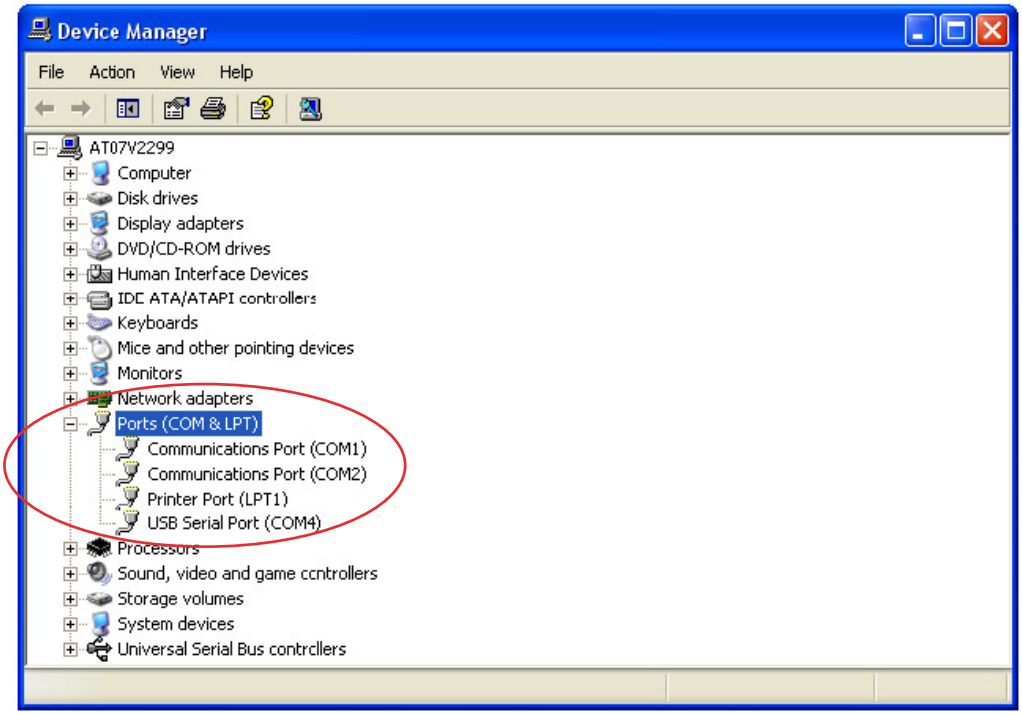


1–7–4 Uninstallation Procedure

(1) Connect the interface cable.

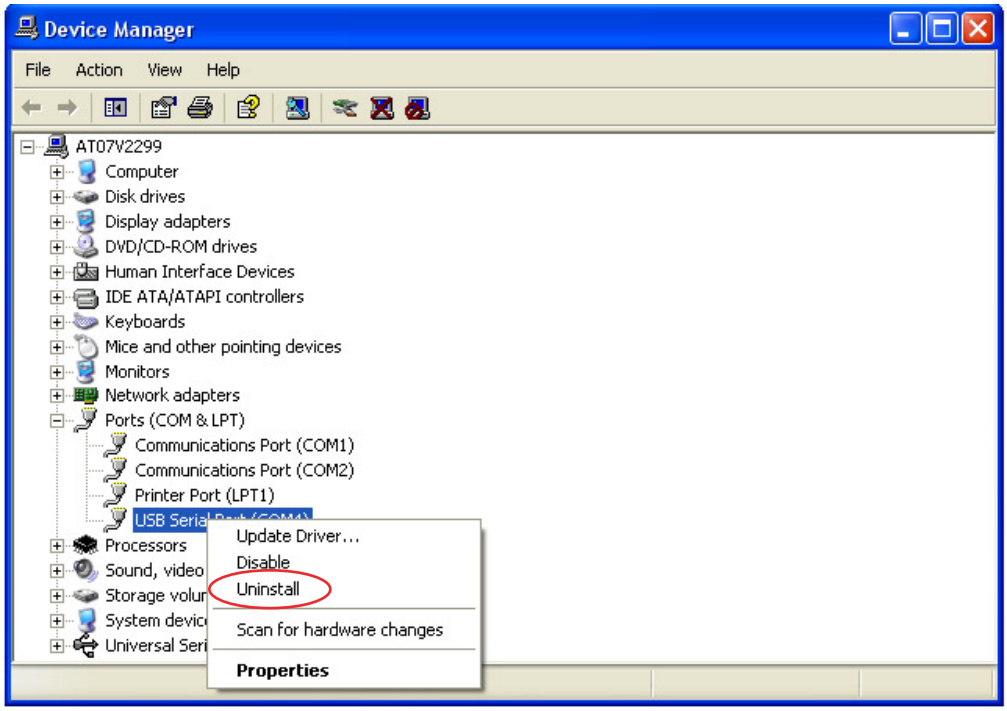
(2) Open “Device Manager”.

(3) Open “Ports (COM & LPT)”.

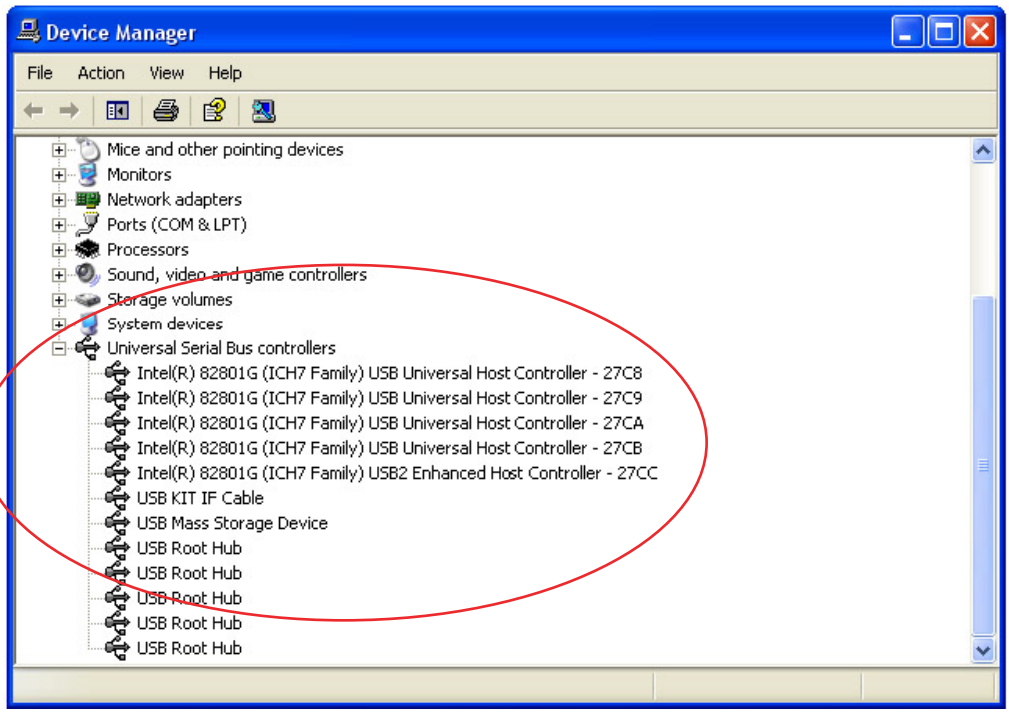


(4) Select the desired serial port and right click.

(5) Click “Uninstall”.

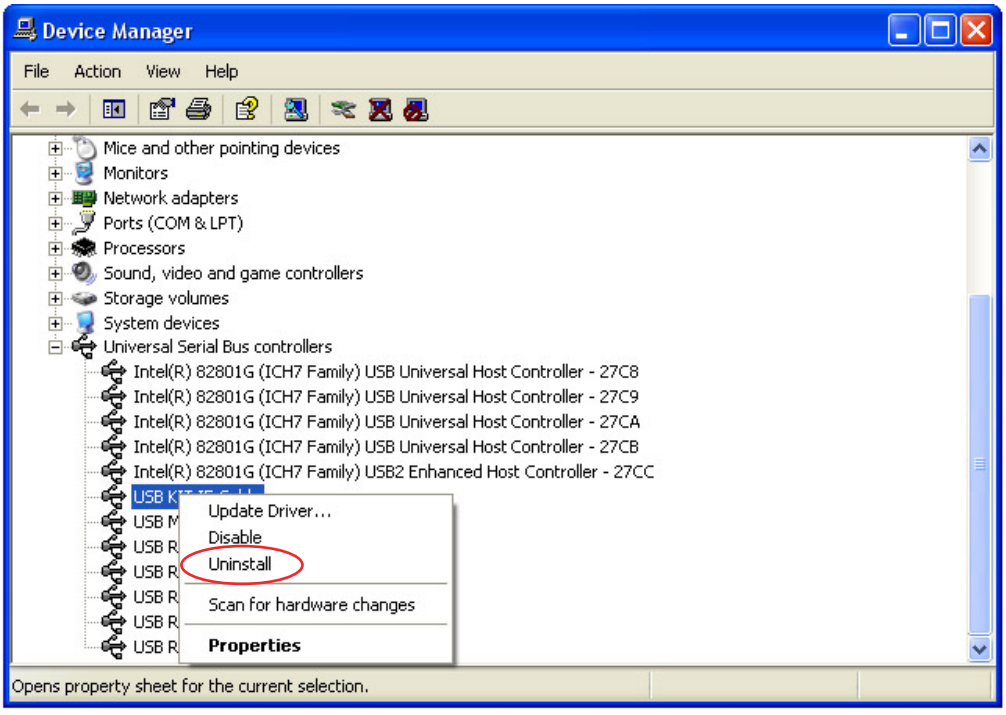


(6) Open “USB Controller”.


Device Manager
File Action View Help
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Processors
Sound, video and game controllers
Storage volumes
System devices
Universal Serial Bus controllers
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
USB KIT IF Cable
USB Mass Storage Device
USB Root Hub
USB Root Hub
USB Root Hub
USB Root Hub
USB Root Hub

(7) Select “USB KIT IF Cable” and right click.

(8) Click “Uninstall”.


Device Manager
File Action View Help
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Processors
Sound, video and game controllers
Storage volumes
System devices
Universal Serial Bus controllers
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
Update Driver...
Disable
Uninstall
Scan for hardware changes
Properties
Opens property sheet for the current selection.

*** If reinstalling the driver, you must first uninstall it.**

2 Outline of functions

The following functions are seen in the YMS.

- To read data from ECU, edits fuel adjusting map and ignition map, and writes in ECU.
- To read saved data, and after confirming the contents and editing, writes in ECU.
- To read saved data, and compares with ECU data or other saved data.

2–1 YZF-R6

2–1–1 Function outline of the YEC FI Matching System

	Map items	Functions	Contents
(1)	Shifter / Cut Time	Sets ignition cut time by each gear	Setting possible by each gear within scope of 0 to 150 ms. When shifter/cut time (***)=0 ms is set, the selected gear flameout control can be ineffective.
(2)	Comp. FUEL / Map 1	Adjusts A/F	Corrects fuel amount by increasing-decreasing within range of ±30% Effective at 1,000 rpm and higher (Not corrected at less than 1000 rpm) Map 1 or Map 2 can be selected with the map switch. (Contact open: Map 1, contact closed: Map 2)
(3)	Comp. FUEL / Map 2		
(4)	Offset IGNITION	Corrects ignition time	Corrects ignition timing within range of -15° CA to 5° CA Effective at 3000 rpm and above. (Does not make corrections at less than 3000 rpm).
(5)	Comp. ETV / Acceleration	Corrects ETV opening (Acceleration correction)	Corrects basic ETV opening within a range of -100% to 0%. Example: Suppress torque by inputting -20% to the area of high opening at low revolution.
(6)	Comp. ETV / Engine Brake	Corrects ETV opening (Engine brake correction)	Corrects basic ETV opening between 0 and 50 steps (Automatically limits to a maximum value within the ECU by an operating range). Enables adjustment at different engine speeds (and independently for each gear)
(7)	Comp. FUEL / All Area	Adjusts A/F	Has same function as (2) Comp. Fuel and makes uniform correction of operation areas. Corrects increase-decrease of fuel amount within a scope of ±30%.

	Const items	Functions	Contents
(8)	Shifter / On Voltage	Sets speed shift start input voltage	Adjusting the Level of Shifter Control Starting Voltage When the voltage is over (or under) the preset value, the ignition is cut off. With the positive value at which the engine torque is through, the ignition is cut off over the preset value and with the negative value the ignition is cut off under the preset value. (Example) 2V: Igniting is cut off over 2V. -2V: Ignition is cut off under 2V. The setting range covers from -5.00 to 4.96V. Switching on using the kit harness requires 2.5V.
(9)	Comp. RAM Correction	Adjusts A/F relating to Ram pressure	Entered if there is discrepancy of A/F compared with the vehicle speed. Can be adjusted within the range of ±10%.
(10)	Rev. Limiter Offset	Corrects revolution limiter	Can be corrected within a range of -1000 rpm to 0 rpm to existing value of revolution limiter.
(11)	Pit Road Limiter	For pit load control Setting of engine revolution limiter	Set within range of EG revolution range between 2000 and revolution limit rpm. Only effective in first and second gear.
(12)	Gear Ratio 1st 2nd 3rd 4th 5th 6th	Transmission selection	Transmission selection function Enter the ratio of each gear (number of wheel teeth/ number of pinion teeth)
(13)	Number of teeth (6th/Wheel)		Enter the number of teeth on the wheel side of the gear fitted with a sensor. (No. of teeth on wheel side of sixth gear)
(14)	VI (VARIABLE INTAKE)	VI starts operating. Determine the engine speed.	Set within range of EG revolution range between 5000 and revolution limit rpm.
(16)	Comp. IDL	Idling correction	Idling correction function (=Engine brake also changes) Can be corrected within a range of -1 to 2.

2–1–2 Targets for setting of the YEC FI Matching System and precautions

(1) Shifter / Cut Time

In case ignition cut time is short: Shift loss is reduced but there may cause hard gear throws.

In case ignition cut time is long: Gear throws will be easier but shift loss will increase.

CAUTION:

If ignition cut time is too short, the drive system may be damaged.

(2) Comp. FUEL / Map 1 (3) Comp. FUEL / Map 2 (7) Comp. FUEL / All Area

It is recommended that adjustment be made while constantly checking A/F. Aim for A/F 12 to 13. Change at one time should be changes of 2% to 5% and especially for changes on the reduction side, (in case of becoming thinner), pay attention to the A/F value while changing.

CAUTION:

If A/F is too thin, may relate to damage of the engine.

(4) Offset IGNITION

Adjust to the spark advancing side if too excessive, may possibly damage the engine. Sufficient care is needed when making adjustment. In case no change is seen when spark advancing is selected, or when at a loss to which side adjustment should made, it is recommended that adjustment be made to the spark retarding side.

CAUTION:

Adjusting to the spark advancing side may possibly damage the engine if too extreme.

(6) Comp. ETV / Engine Brake

CAUTION:

If open setting of the throttle is made to reduce engine braking, the engine revolution may not drop enough at corners and over-speeding may risk causing of serious accidents. Especially, a change in gear ratio, or the running on a course for the first time, will require paying of sufficient attention.

(9) Comp. RAM Correction

Use only when the A/F diverges with increased vehicle speed.

(11) Pit Road Limiter

For control of engine revolution, obtain the necessary engine revolution from the following formula and input the obtained value.

$$\text{Engine revolution} = \frac{\text{Target speed (km/h)} \times (\text{Primary speed reduction ratio} \times 1^{st}\ \text{gear ratio} \times \text{secondary speed reduction ratio}) \times 1000000}{60 \times \text{tire periphery (mm)}}$$

YZF-R6	Model	Gear ratio
Primary reduction gear ratio		2.07
1st gear ratio	STD	2.58
	'06KIT	2.16
	'06KIT-OP	2.31
	'07, '08, '09 A KIT	2.31
	B	2.47
	C	2.58

(12), (13) Gear Ratio / Number of teeth

YZF-R6	STD	A	B	C
Gear Ratio 1st	2.58	2.31	2.47	2.58
Gear Ratio 2nd	2.00	1.86	1.95	2.00
Gear Ratio 3rd	1.67	1.57	1.61	1.67
Gear Ratio 4th	1.44	1.39	1.44	1.47
Gear Ratio 5th	1.29	1.27	1.30	1.35
Gear Ratio 6th	1.15	1.14	1.15	1.18
Number of teeth (6th/Wheel)	23	25	23	26

CAUTION:

Set the mission selection function properly, otherwise Shifter/Cut Time does not function correctly.

2–2 YZF-R1

2–2–1 Function outline of the YEC FI Matching System

	Map items	Functions	Contents
(1)	Shifter / Cut Time	Sets ignition cut time by each gear	Setting possible by each gear within scope of 0 to 150 ms. When shifter/cut time (***)=0 ms is set, the selected gear flameout control can be ineffective.
(2)	Comp. FUEL / Map 1	Adjusts A/F	Corrects fuel amount by increasing-decreasing within range of ±30% Effective at 1,000 rpm and higher (Not corrected at less than 1000 rpm) Map 1 or Map 2 can be selected with the map switch. (Contact open: Map 1, contact closed: Map 2)
(3)	Comp. FUEL / Map 2		
(4)	Offset IGNITION / Map1	Corrects ignition time	Corrects ignition timing within range of -15° CA to 5° CA Effective at 3000 rpm and above. (Does not make corrections at less than 3000 rpm). The map switch lets you change between Map 1 and Map 2 (Switch open: Map1, Switch closed: Map 2)
(5)	Offset IGNITION / Map2		
(6)	Comp. ETV / Engine Brake	Corrects ETV opening (Engine brake correction)	Corrects basic ETV opening between 0 and 50 steps (Automatically limits to a maximum value within the ECU by an operating range). Enables adjustment at different engine speeds (and independently for each gear)
(7)	Comp. FUEL / All Area	Adjusts A/F	Has same function as (2) Comp. Fuel and makes uniform correction of operation areas. Corrects increase-decrease of fuel amount within a scope of ±30%.

	Const items	Functions	Contents
(8)	Shifter / On Voltage	Sets speed shift start input voltage	Adjusting the Level of Shifter Control Starting Voltage When the voltage is over (or under) the preset value, the ignition is cut off. With the positive value at which the engine torque is through, the ignition is cut off over the preset value and with the negative value the ignition is cut off under the preset value. (Example) 2V: Igniting is cut off over 2V. -2V: Ignition is cut off under 2V. The setting range covers from -5.00 to 4.96V. Switching on using the kit harness requires 2.5V.
(9)	Comp. RAM Correction	Adjusts A/F relating to Ram pressure	Entered if there is discrepancy of A/F compared with the vehicle speed. Can be adjusted within the range of ±10%.
(10)	Rev. Limiter Offset	Corrects revolution limiter	Can be corrected within a range of -1000 rpm to 0 rpm to existing value of revolution limiter.
(11)	Pit Road Limiter	For pit load control Setting of engine revolution limiter	Set within range of EG revolution range between 2000 and revolution limit rpm. Only effective in first and second gear.
(12)	Gear Ratio 1st 2nd 3rd 4th 5th 6th	Transmission selection	Transmission selection function Enter the ratio of each gear (number of wheel teeth/ number of pinion teeth)
(13)	Number of teeth (6th/Wheel)		Enter the number of teeth on the wheel side of the gear fitted with a sensor (No. of teeth on wheel side of sixth gear)
(14)	VI (VARIABLE INTAKE)	VI starts operating. Determine the engine speed.	Set within range of EG revolution range between 5000 and revolution limit rpm.
(16)	Comp. IDL	Idling correction	Idling correction function (=Engine brake also changes) Can be corrected within a range of -1 to 2.

2–2–2 Targets for setting of the YEC FI Matching System and precautions

(1) Shifter / Cut Time

In case ignition cut time is short: Shift loss is reduced but there may cause hard gear throws.

In case ignition cut time is long: Gear throws will be easier but shift loss will increase.

CAUTION:

If ignition cut time is too short, the drive system may be damaged.

(2) Comp. FUEL / Map 1 (3) Comp. FUEL / Map 2 (7) Comp. FUEL / All Area

It is recommended that adjustment be made while constantly checking A/F. Aim for A/F 12 to 13. Change at one time should be changes of 2% to 5% and especially for changes on the reduction side, (in case of becoming thinner), pay attention to the A/F value while changing.

CAUTION:

If A/F is too thin, may relate to damage of the engine.

(4) Offset IGNITION / Map 1 (5) Offset IGNITION / Map 2

Adjust to the spark advancing side if too excessive, may possibly damage the engine. Sufficient care is needed when making adjustment. In case no change is seen when spark advancing is selected, or when at a loss to which side adjustment should made, it is recommended that adjustment be made to the spark retarding side.

CAUTION:

Adjusting to the spark advancing side may possibly damage the engine if too extreme.

(6) Comp. ETV / Engine Brake

CAUTION:

If open setting of the throttle is made to reduce engine braking, the engine revolution may not drop enough at corners and over-speeding may risk causing of serious accidents. Especially, a change in gear ratio, or the running on a course for the first time, will require paying of sufficient attention.

(9) Comp. RAM Correction

Use only when the A/F diverges with increased vehicle speed.

(11) Pit Road Limiter

For control of engine revolution, obtain the necessary engine revolution from the following formula and input the obtained value.

$$\text{Engine revolution} = \frac{\text{Target speed (km/h)} \times (\text{Primary speed reduction ratio} \times 1^{st}\ \text{gear ratio} \times \text{secondary speed reduction ratio}) \times 1000000}{60 \times \text{tire periphery (mm)}}$$

YZF-R1	Model	Gear ratio
Primary reduction gear ratio		1.512
1st gear ratio	STD	2.533
	'07, '08, '09 A KIT	2.429
	B	2.357
	C	2.313

(12), (13) Gear Ratio / Number of teeth

YZF-R1	STD	A	B	C
Gear Ratio 1st	2.53	2.43	2.36	2.31
Gear Ratio 2nd	2.06	2.13	2.00	1.94
Gear Ratio 3rd	1.76	1.82	1.74	1.61
Gear Ratio 4th	1.52	1.60	1.52	1.48
Gear Ratio 5th	1.36	1.47	1.41	1.36
Gear Ratio 6th	1.27	1.33	1.32	1.27
Number of teeth (6th/Wheel)	33	28	33	33

CAUTION:

Set the mission selection function properly, otherwise Shifter/Cut Time does not function correctly.

3 Quick -manual

3–1 List of operations

3–1–1 Editing and writing in of ECU data

This is the operation procedure for reading in data from ECU, editing the fuel adjusting map and ignition timing map, and writing in ECU.

No.	Objective	Operation of YMS	Remarks
(1)	Startup of YMS	Double click for shortcut to YMS	
(2)	ycz File reading in	File > Open	Only YMS exclusive file
(3)	Reading in data from ECU	Tool > Read from ECU	Keep power to ECU ON.
(4)	Data content confirming, editing	Editing optional data of Map/ Const.	At this point, not reflected on ECU
(5)	Writing in data in ECU	Tool > Write to ECU	Keep power to ECU ON.
(6)	Title information editing	Tool > Title	Edit Title information as required
(7)	ycz File saving	File > Save as	Store file as required

3–1–2 Editing of saved data in files and writing in ECU

This is the procedure for reading in saved data (ycz File), checking contents, editing, and writing in ECU.

No.	Objective	Operation of YMS	Remarks
(1)	Startup of YMS	Double click for shortcut to YMS	
(2)	ycz File reading in	File > Open	Only YMS exclusive file
(4)	Data content confirming, editing	Editing optional data of Map/ Const.	At this point, not reflected on ECU
(5)	Writing in data in ECU	Tool > Write to ECU	Keep power to ECU ON.
(6)	Title information editing	Tool > Title	Edit Title information as required
(7)	ycz File saving	File > Save as	Store file as required

3–1–3 Comparison of data saved in files and ECU data

This is the operation for reading in saved data (ycz File) and comparing with ECU data or other saved data (ycz File).

No.	Objective	Operation of YMS	Remarks
(1)	Startup of YMS	Double click for shortcut to YMS	
(2)	ycz File reading in	File > Open	Only YMS exclusive file
(8)	Data comparison	Tool > Data Compare	
(9)	Comparison of edited data and ECU data.	Edit area with ECU > Verify	Keep power to ECU ON.
(10)	Comparison of other ycz File and ECU data.	File data with ECU > Verify	Keep power to ECU ON.
(11)	Comparison of editing data and other ycz File.	Edit area with File data > Verify	Only exclusive file for YMS

3–2 Explanation of operations

3–2–1 Editing and writing in of ECU data

This is the operation procedure for reading in data from ECU, editing fuel adjusting Map and ignition typing map, and writing in ECU.

(1) Startup of YMS

Double click short-cut to YMS on desk top “YEC FI Matching System.”

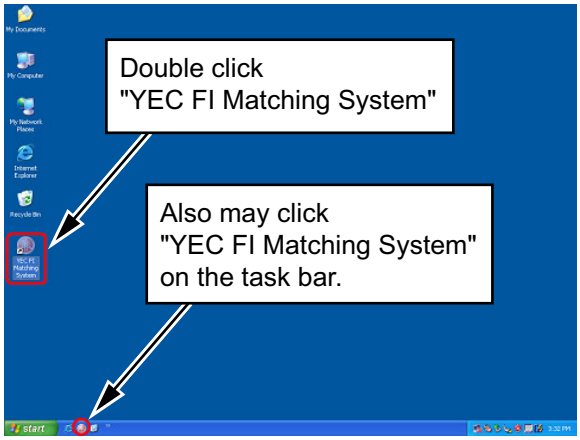


Fig. 8: startup of YMS

(2) Reading in ycz File

File > open First, read in the ycz File of the applicable model in.

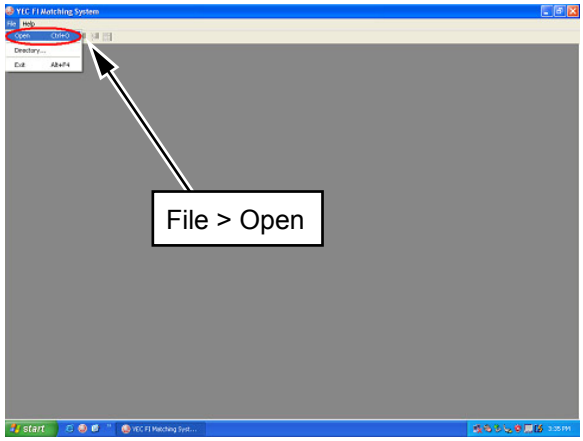


Fig. 9: Reading in of ycz File

(3) Reading in data from ECU.

Tool>Read from ECU

* At this time, keep power to ECU ON.

Read in is completed when “Complete” is displayed. Click “OK.”

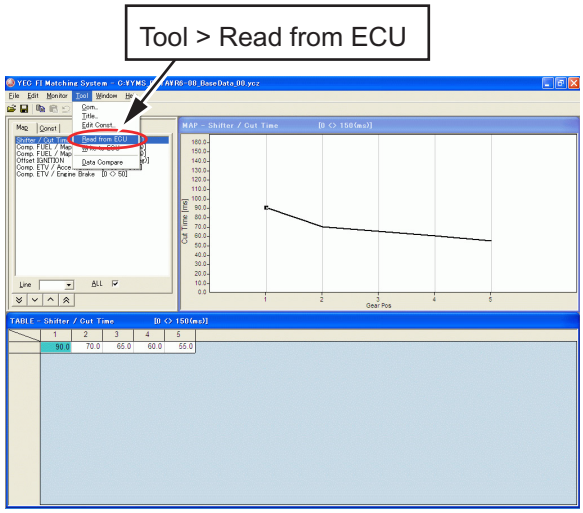


Fig. 10: Reading in data from ECU

(4) Confirming, editing contents of data

Edit optional data of Map/ Const.

* At this point, not reflected in ECU.

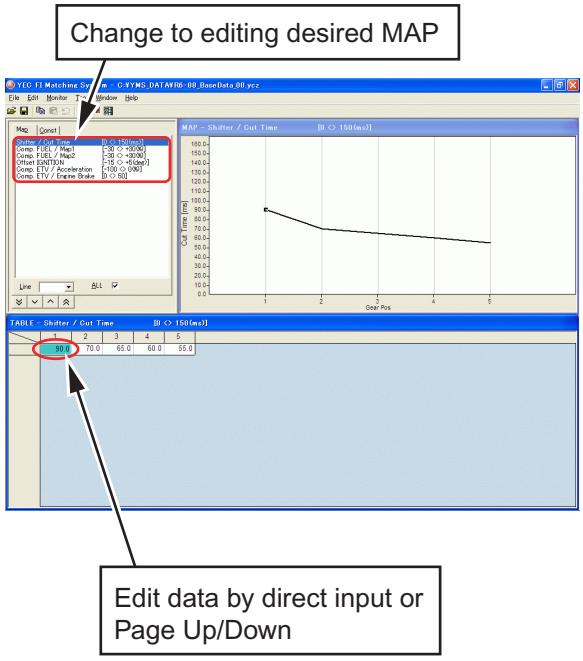


Fig. 11: Data editing (Map data editing)

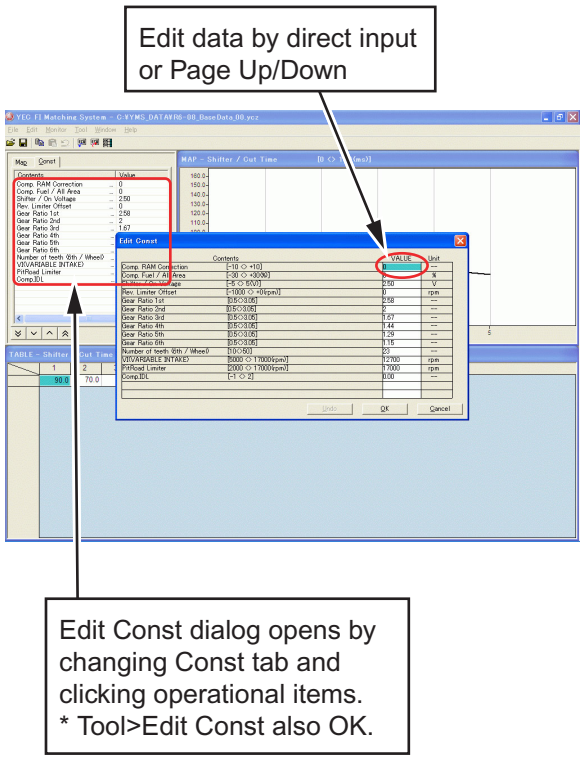

Edit data by direct input or Page Up/Down
Edit Const dialog opens by changing Const tab and clicking operational items.
* Tool>Edit Const also OK.

Fig. 12: Data editing (Const data editing)

(5) Writing in data to ECU

Tool>Write to ECU

* Keep power to ECU ON.

When “Data Write Complete Finished OK!!” is displayed, writing in is completed. Click “OK.”

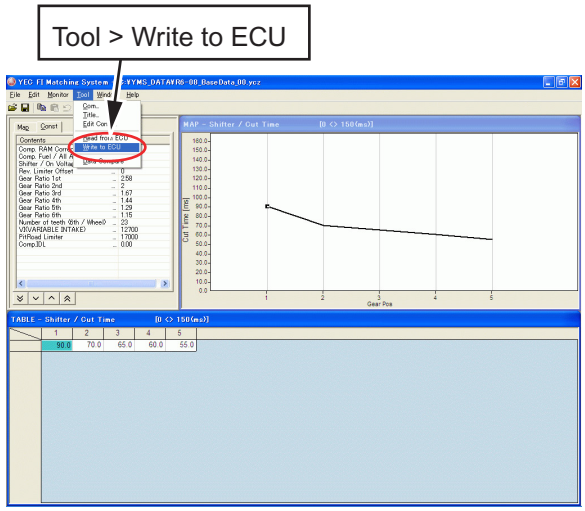


Fig. 13: Write in data to ECU

(6) Title information editing

* Title is edited as required.

Tool > Title

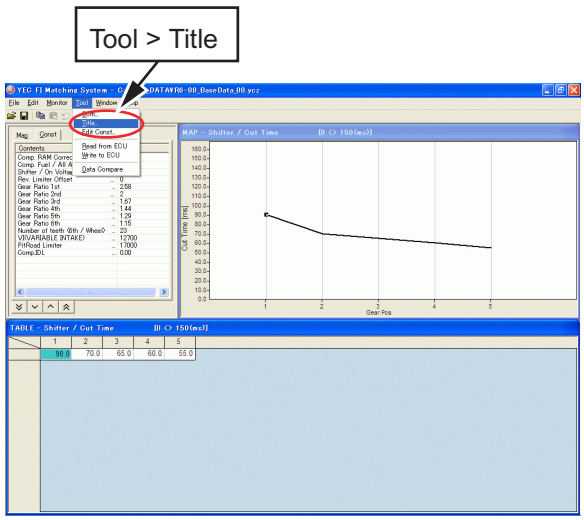


Fig. 14: Title Editor dialog startup

Select item on which editing is desired and click edit button for dialog startup of the edit title.

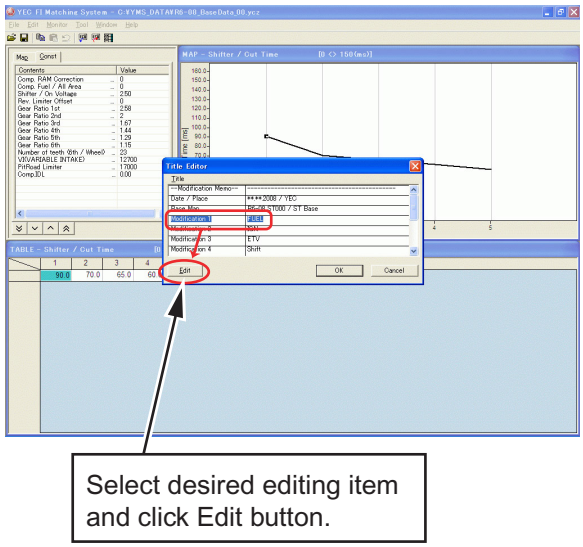


Fig. 15: Title Editor dialog

Edit optionally. Click OK to edit respective items

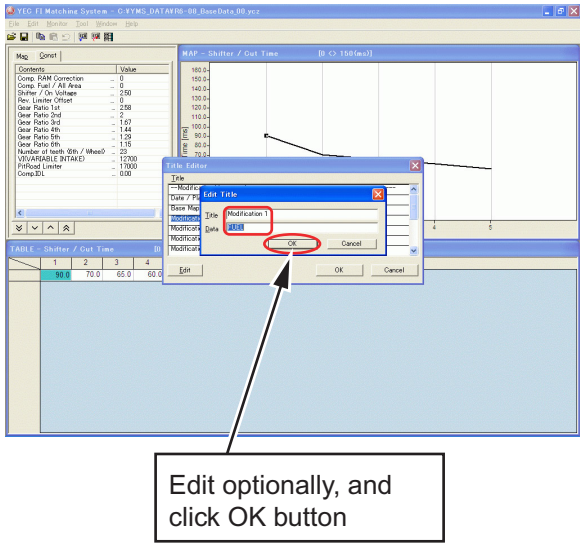


Fig. 16: Edit Title dialog

(7) Saving of ycz File

* Save files as required.

File > Save as

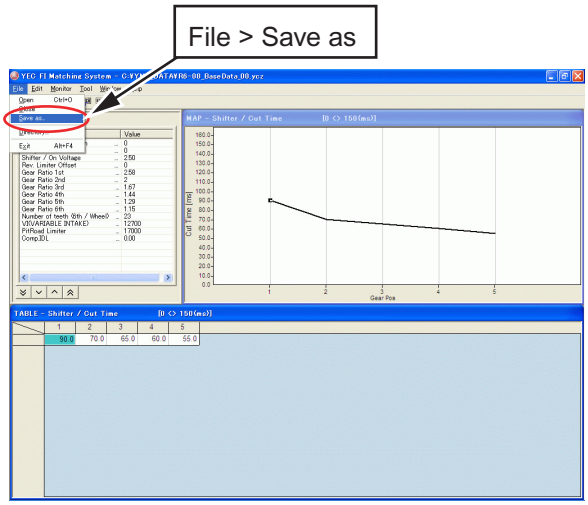


Fig. 17: Saving of ycz File

3–2–2 Editing of data saved in files as well as writing in ECU

This is the operation procedure when reading in saved data (ycz File), confirming of contents, then after editing, writing in the ECU.

(1) Startup of YMS is in accordance with 3-2-1, same as editing and writing in ECU data

(2) Read in ycz File.

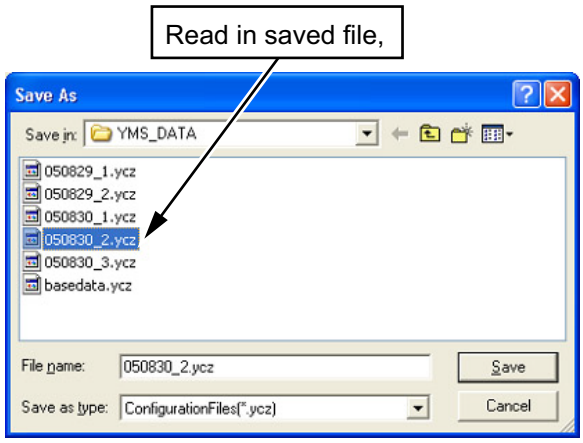


Fig. 18: Read in of ycz File

(3) Read in of data from ECU is not required when editing data saved in file.

(4) Data content confirming editing
Confirm that contents of data of Map/Const is the data desired for writing in ECU and edit if necessary.
* At this point, not reflected in ECU.
Conduct (5) Writing in data to ECU, (6) Title information editing (7) Saving of ycz File after data editing by the same procedure with that of 3-2-1. Editing and writing of ECU data.

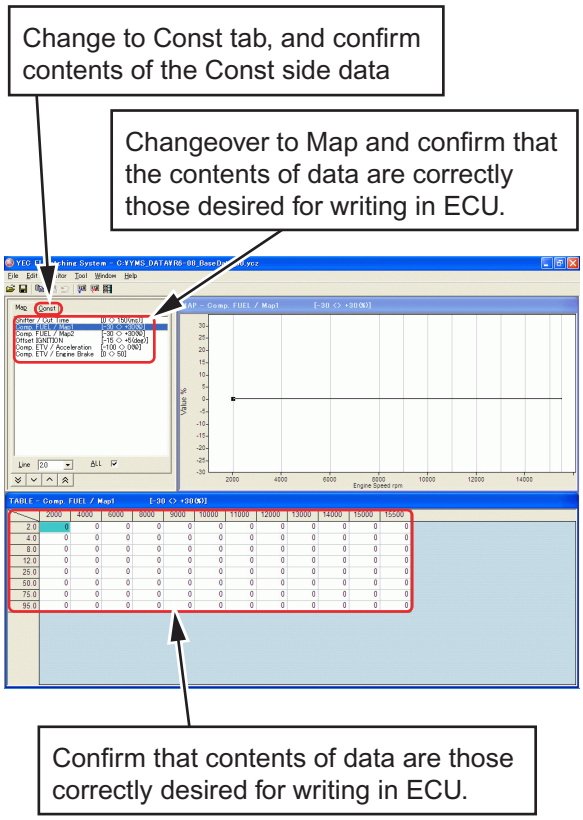

Change to Const tab, and confirm contents of the Const side data
Changeover to Map and confirm that the contents of data are correctly those desired for writing in ECU.
Confirm that contents of data are those correctly desired for writing in ECU.

Fig. 19: Data content confirming editing.

3–2–3 Comparison of data saved in files and ECU data

This is the operation for reading in saved data (ycz File) and comparing with ECU data or other saved data (ycz File).

(8) Data comparison

Tool > Data Compare

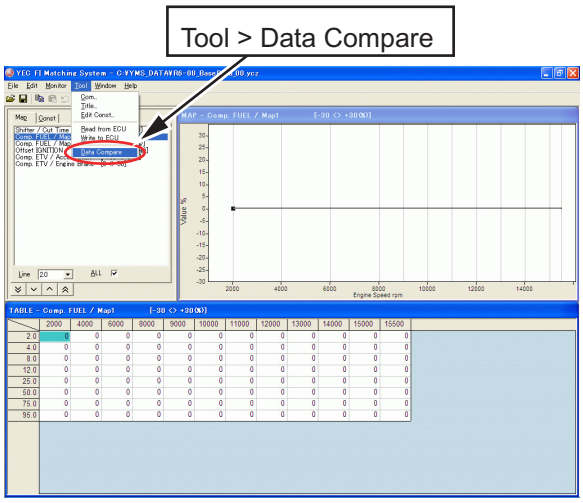


Fig. 20: Data comparison dialog startup

(9) Comparison of edit data and ECU data

In case it is desired to compare data presently being edited with ECU data, select “Edit area with ECU” and click Verify button.

* At this time, keep power to ECU ON.

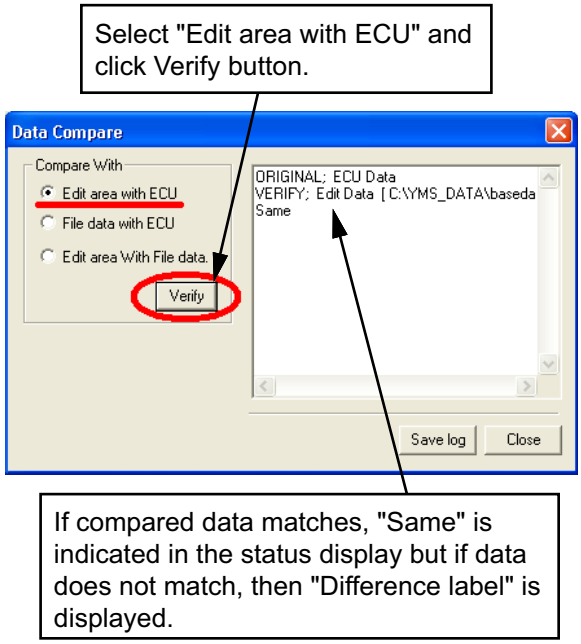

Select "Edit area with ECU" and click Verify button.
Data Compare
Compare With
Edit area with ECU
File data with ECU
Edit area With File data
Verify
ORIGINAL; ECU Data
VERIFY; Edit Data [C:\YMS_DATA\baseda
Same
Save log
Close
If compared data matches, "Same" is indicated in the status display but if data does not match, then "Difference label" is displayed.

Fig. 21:
Data compare dialog (Edit area with ECU)

(10) Comparison of other ycz File and ECU data

In case it is desired to compare other ycz File and ECU data while leaving data presently being edited as it is, select “File data with ECU” and click Verify button.

Open the open file dialog and specify the other ycz Files desired for comparison with ECU members.

* At this time, keep power to ECU ON.

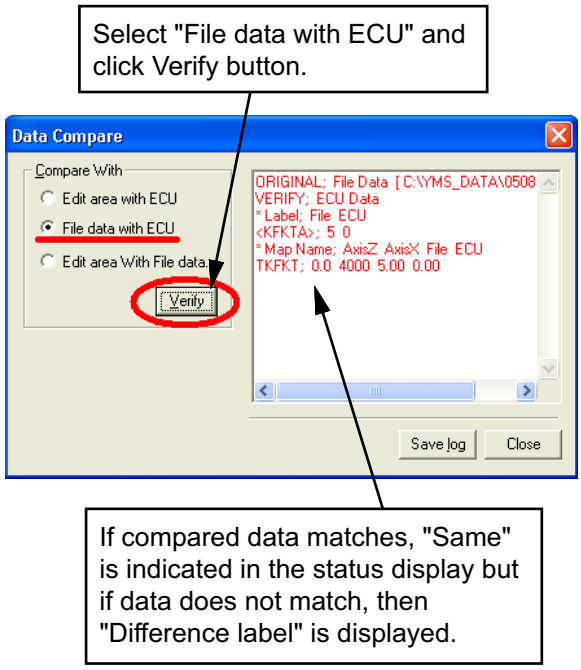

Select "File data with ECU" and click Verify button.
Data Compare
Compare With
Edit area with ECU
File data with ECU
Edit area With File data
Verify
ORIGINAL; File Data [C:\YMS_DATA\0508
VERIFY; ECU Data
* Label; File ECU
<KFKTA>; 5 0
* Map Name; AxisZ AxisX File ECU
TKFKT; 0.0 4000 5.00 0.00
Save log
Close
If compared data matches, "Same" is indicated in the status display but if data does not match, then "Difference label" is displayed.

Fig. 22:
Data compare dialog (File data with ECU)

(11) Comparison of Edit data with other ycz File

In case it is desired to compare data presently being edited with other ycz File, select “Edit area with File data” and click Verify button.

The Open File dialog opens. Specify the other ycz File which you desire to compare with data presently being edited.

* ”Edit area With File Data” does not conduct ECU communication because of comparison between the data presently being edited and the ycz File.

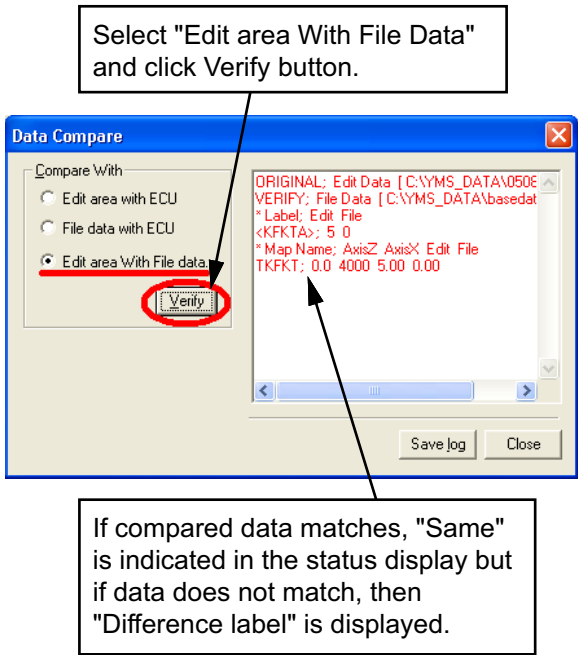

Select "Edit area With File Data" and click Verify button.
Data Compare
Compare With
Edit area with ECU
File data with ECU
Edit area With File data
Verify
ORIGINAL; Edit Data [C:\YMS_DATA\0508
VERIFY; File Data [C:\YMS_DATA\basedat
* Label; Edit File
<KFKTA>; 5 0
* Map Name; AxisZ AxisX Edit File
TKFKT; 0.0 4000 5.00 0.00
Save log
Close
If compared data matches, "Same" is indicated in the status display but if data does not match, then "Difference label" is displayed.

Fig. 23:
Data Compare dialog (Edit area with File data)

4 Explanations of screens

4–1 Editing screen

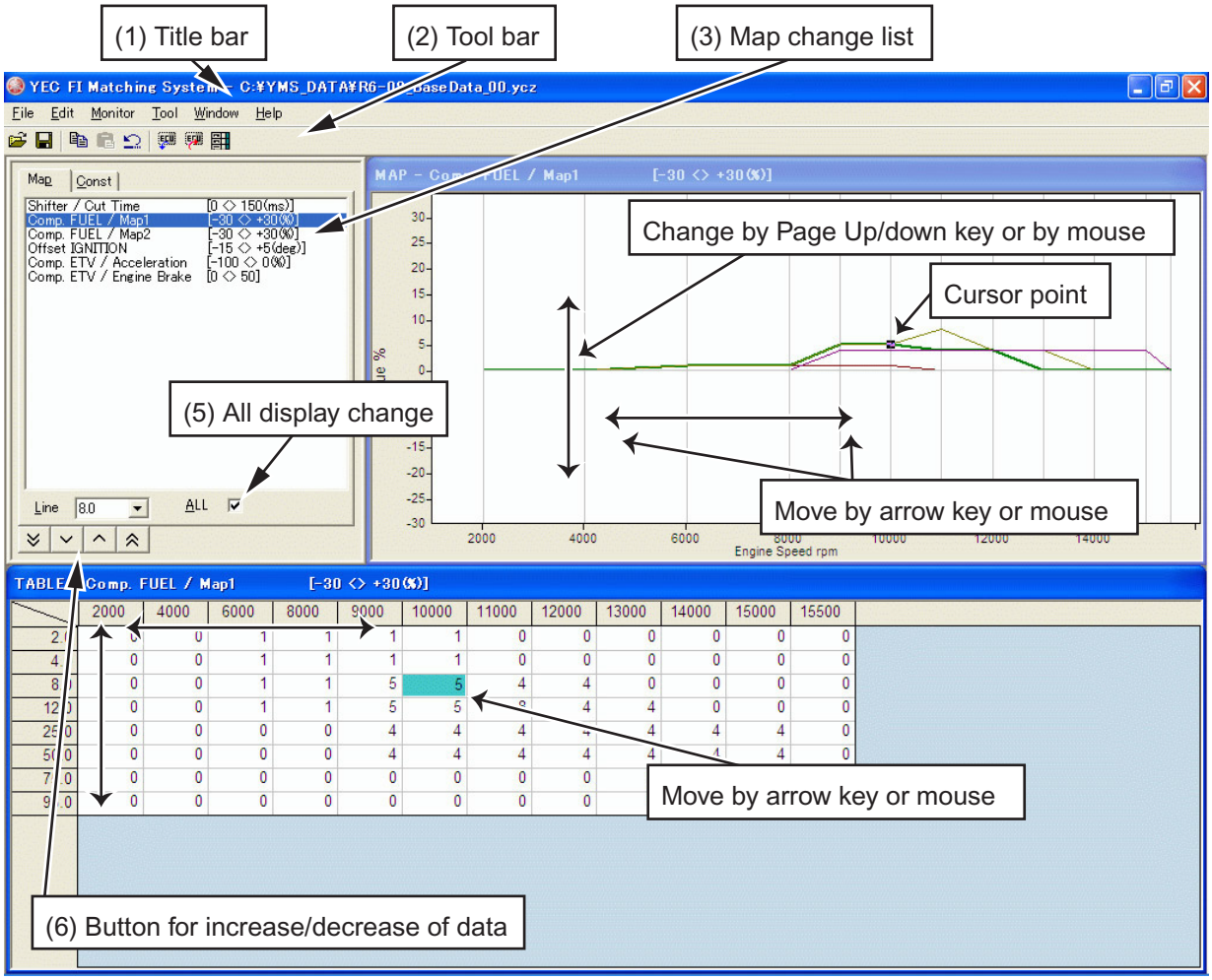

(1) Title bar
(2) Tool bar
(3) Map change list
Change by Page Up/down key or by mouse
Cursor point
(5) All display change
Move by arrow key or mouse
Move by arrow key or mouse
(6) Button for increase/decrease of data
File Edit Monitor Tool Window Help
Map
Const
Shifter / Cut Time [0 ◇ 150(ms)]
Comp. FUEL / Map1 [-30 ◇ +30(%)]
Comp. FUEL / Map2 [-30 ◇ +30(%)]
Offset IGNITION [-15 ◇ +5(deg)]
Comp. ETV / Acceleration [-100 ◇ 0(%)]
Comp. ETV / Engine Brake [0 ◇ 50]
Line 8.0
ALL
Engine Speed rpm
TABLE Comp. FUEL / Map1 [-30 ◇ +30(%)]

Fig. 24: Editing screen

(1) Title bar

Opened file names are shown by directory name on title bar.

(2) Tool bar

From the left

- Open :File-Open
- Save :File-Save
- Copy :Edit-Copy
- Paste :Edit-Paste
- Undo :Edit-Undo
- Read from ECU :Tool-Read data from ECU
- Write to ECU :Tool - Write data to ECU
- Edit Const :Tool-Open Edit Const dialog

(3) Map change list

Map tab: Displays a list of labels of MAPs to be edited, and when the cursor is pointed to a Label, the Map of the Label is displayed on the MAP window and on the Label MAP.

Const tab: Displays Const. List which may be edited. When list is clicked. Edit Const. dialog is opened.

(5) ALL display change

When checked, all lines of the MAP graph are displayed and when the check is removed, only the selected lines are displayed.

(6) Button for increase/decrease of data

Button: Data of selected cell are reduced by tenfold of minimum increments

Button: Data of selected cell are reduced by minimum increments

Button: Data of selected cell are increased by tenfold of minimum increment

Button: Data of selected cell are increased by minimum increments

4–2 Function explanation

4–2–1 Graph editing function on MAP screen

- Data editing function on graph point
  Clicking on graph: Graph is selected and also the editing point of the revolution nearest to the clicked point is selected.
  Drag and drop of graph data: Edit point is selected with left button down. By moving up and down, changed to the editing point nearest to the release point. (Direction of revolution is not changed)

4–2–2 MAP editing function on TABLE screen

Editing by key inputting is possible. When a value outside the data settable range is imputed, a warning message dialog is displayed and a value for which data settable value is automatically set.

* When a figure key or minus key is inputted, becomes in a cell editing status and key inputting status. Also becomes in a cell editing status by double clicking of the mouse.

- Editing of axis cell
  Revolution axis, throttle opening axis may both be numerically inputted or may be changed by [Page Up]/[Page Down] keys. The input value is limited by the maximum input range or by the value of the adjacent cell value.

CAUTION:

The Comp. FUEL / Map 1 axis and Comp. FUEL / Map 2 axis (engine rotation and throttle opening) are common. When either one is changed, the same value is reflected on the other.

4–2–3 Selecting of plural cells, editing, copy function on the TABLE screen

When in a status with cursor at an optional cell, drag by mouse and a plural cell selecting status is seen.

* When a numerical key or minus key is inputted, becomes in a cell editing status with key inputting status. Double clicking of the mouse releases multiple cell selection and becomes in cell editing status.

4–2–4 Pasting function of plural cell data on TABLE screen

Data array copied in a plural cell selecting status may be pasted by {Ctrl} + {V} key on any optional cell other than the revolution increment and throttle opening increment axis cells. Also, plural cell data copied from Excel, etc. may be pasted via the clip board.

* However, when plural cell data is copied on the clip board, posting cannot be made in a plural cell selecting status.

In case pasting of data array exceeding the cell range in which pasting on the Table is attempted, the data exceeding the pasting possible range is ignored, The pasted data is consistently rounded to a minimum increment figure. In case of values outside the data settable range, the limit value within the settable range is automatically set.

TABLE - Comp. FUEL / Map1 [-30 <> +30(%)]

	2000	4000	6000	8000	9000	10000	11000	12000	13000	14000	15000	15500
2.0	0	0	1	1	1	1	0	0	0	0	0	0
4.0	0	0	1	1	1	1	0	0	0	0	0	0
8.0	0	0	1	1	5	5	4	4	0	0	0	0
12.0	0	0	1	1	5	5	8	4	4	0	0	0
25.0	0	0	0	0	4	4	4	4	4	4	4	0
50.0	0	0	0	0	4	4	4	4	4	4	4	0
75.0	0	0	0	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0	0	0	0

Fig. 25: Table

5 Pull down menu

5–1 File

Open	Ctrl+O	••Open data file
Close		••Close file to which read in made
Save as...		••Attach name and save.
Directory...		••Display directory setting dialog
Exit	Alt+F4	••End YMS

* Close, Save, as...care not displayed in the pull down menu until read in of data file is made.

5–1–1 Open

Open ycz File.

[Open dialog]

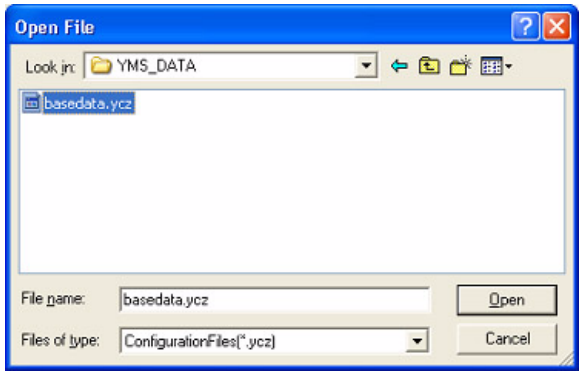


Fig. 26: Open dialog

5–1–2 Close

Close the ycz File being edited.
In case data editing was made from the file opened time or the file save time, a message to check whether data being edited may be closed without file saving is shown.

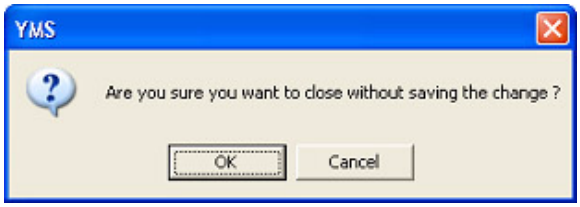


Fig. 27:
Close confirming message
(With difference to file)

Also when data editing was made from the time "Tool>Read from ECU" or "Tool>Write to ECU was conducted, a close confirming message is shown to check whether closing may be made without writing to EUC of data being edited.

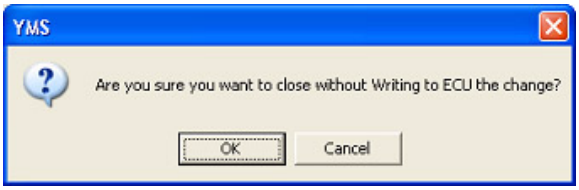


Fig. 28:
Close confirming message
(With difference to ECU)

5–1–3 Save as...

A name is attached to the ycz File being edited and saved.
A Windows standard Save As dialog opens for saving with a name attached to the file.
File being edited may be given an optional name and saved. It is also possible to overwrite an existing file and save.

[Save as dialog]

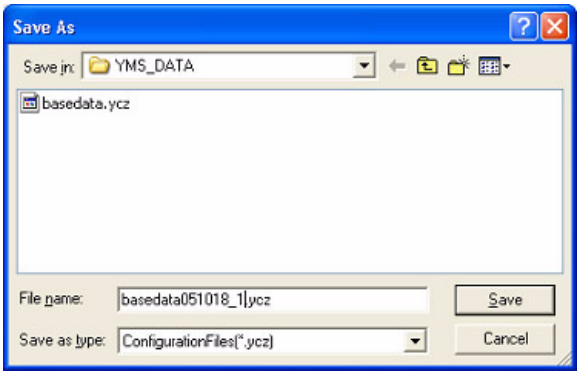


Fig. 29: Save As dialog

5–1–4 Directory...

A Default directory is set.
A folder to be opened by default when conducting File>Open, File>Save as, may be set. The set contents are registered and opened by default at the next startup time.

[Directory setting dialog]

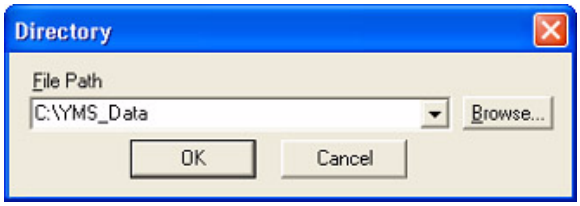


Fig. 30: Directory setting dialog

5–1–5 Exit

Application is ended.

5–2 Edit

Undo	Ctrl+Z	••Return
Copy	Ctrl+C	••Copy
Paste	Ctrl+V	••Paste

5–2–1 Undo

When data is changed or revised with the data editing screen, the changes are cancelled.
The data change information for Undo is kept by each Map.

5–2–2 Copy

Cell data selected on the Table Display screen is stored in the clip board.
With plural cell selected status, the selected plural cell data is saved in the clipboard.

5–2–3 Paste

Pastes data in the clip board by the Table Display screen.
In case there is a copied data array of plural cell selected status in the clip board, array data is pasted in plural in the right downward direction from the cell with the cursor. Data which is crowded out from the Table display screen become invalid.

5–3 Monitor

Monitor... Ctrl+M	••Monitor dialog is displayed
Item set...	••Item setting dialog of the monitor is displayed.

5–3–1 Monitor

Processed value inside ECU is displayed simplified. Functions at less than 4000 rpm by a simplified monitor for function confirming (diagnosis) such as input sensor, etc. Since it is not a real time display, transient changes cannot be confirmed.

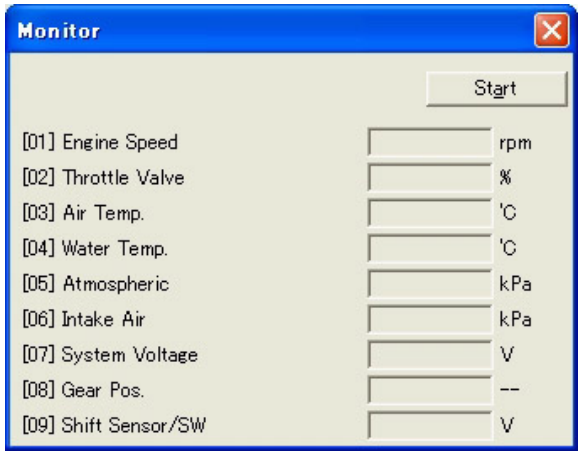


Fig. 31: Monitor dialog

(1) Start button
Starts communications. When communication is started, the inscription changes to "Stop." When pressed during communications, communication is ended and the inscription returns to "Start." Also, communication ends when the dialog is closed.

5–3–2 Item set

Open set monitor data dialog and set Items.

(1) List of items
(2) List of monitor dialog items
>>[A] Addition of items
<<[D] Deletion of items

Items selected as monitor dialog items are automatically stored when YMS.exe is ended.

[Set monitor data dialog]

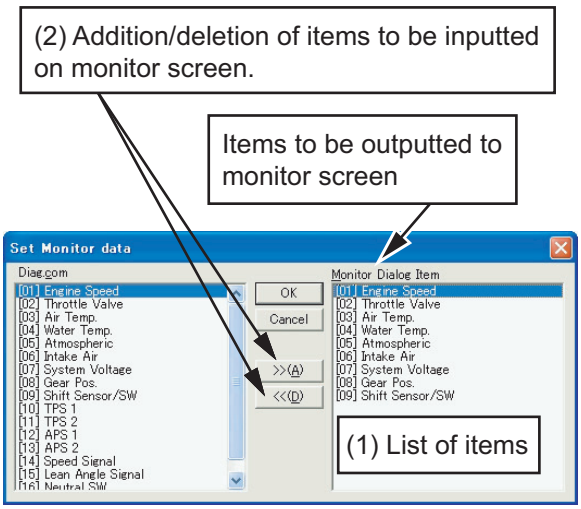


Fig. 32: Set monitor data dialog

5–4 Tool

Com...	••Com port selecting dialog is displayed
Title...	••Title setting dialog is displayed
Edit Const...	••Edit Const dialog is displayed
Read from ECU	••ECU data is read in as editing data.
Write to ECU	••Data being edited is written in ECU
Data Compare...	••Data compare dialog is displayed

5–4–1 Com

Selection of Communications port

A KIT interface cable (13S-8533A-70) is required for communication with a KIT-ECU. Select the Com port by the setting procedure as follows:

Setting procedure

Automatic setting function

(1) Check “Auto Select” in the Com Port setting dialog of the YMS.

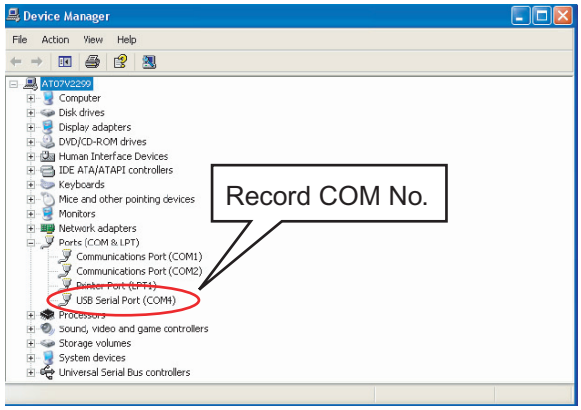


Fig. 33

Manual setting

(If normal communication is not achieved with the automatic setting function, Com Port can be set manually.)

(1) Connect the interface cable to the computer.

(2) Right-click on "My Computer" and open "Properties".

(3) From "Property", open "Hardware" and then "Device manager".

(4) Record the USB Serial Port COM number.

(5) Uncheck "Auto Select" in the Com Port setting dialog of the YMS.

(6) Designate the Communications port number recorded in the YMS Communications port dialog box and click on OK. That concludes the setting.

[Com Port setting dialog]

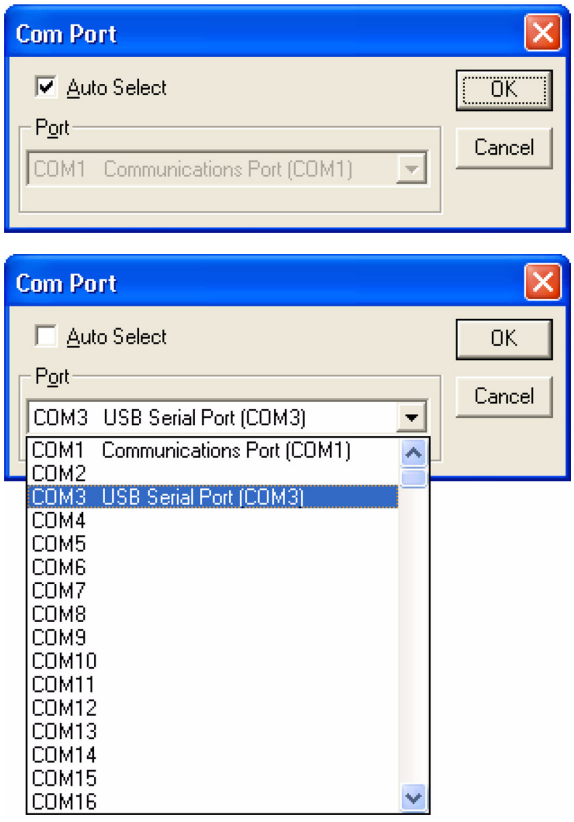


Fig. 34: Com Port setting dialog

5–4–2 Title

Items of [Title] of set file (*.ycz) are displayed and edited.

[Title setting dialog]

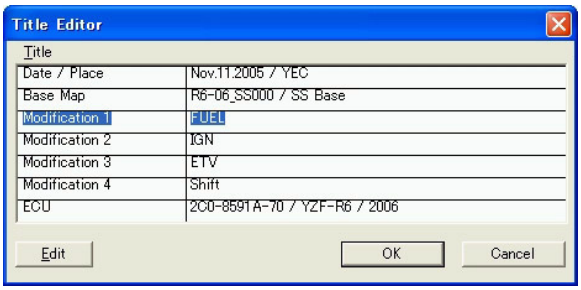


Fig. 35: Title setting dialog

Data items being edited by title setting dialog are selected and when the Edit button is pressed, Edit Title dialog is opened.

[Edit title dialog]

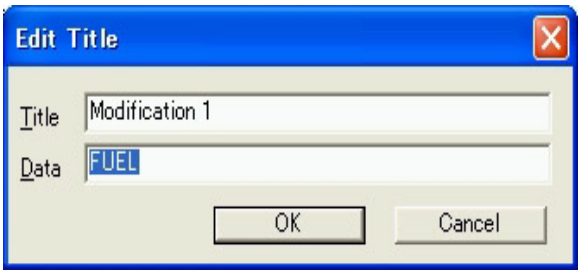


Fig. 36: Edit Title dialog

5–4–3 Edit Const

Display [Calib] items and display and edit the physical quantity (value) of the item.

When a value outside the data settable range in inputted in data editing, warning message dialog is displayed and a limit value within the settable range is automatically set.

(2) Undo button
Undoes the editing contents

(3) OK button
Finalizes the editing contents and closes the dialog.

(4) Cancel button (X button)
Scraps the editing contents without finalizing and closes the dialog.

[Edit Const dialog]

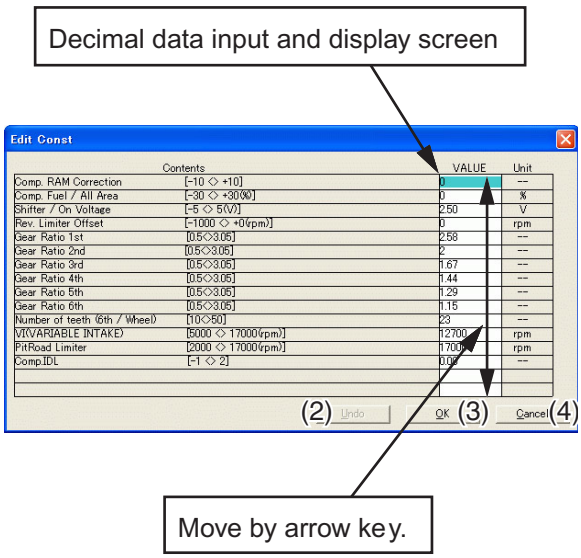


Fig. 37: Edit Const Dialog

5–4–4 Read from ECU

Reads data from ECU and writes in editing area as edit data.
When executed, progress is displayed and when data reading is completed, "Complete" is indicated.
If reading in fails, a message reading "Failed to correspond with ECU, Read Error Address :XXXX " is displayed.
In case communication with other ECU is attempted, a message reading "ECU type is different" is displayed by model distinguishing check.
Each message closes by pressing OK button.

* When the monitor dialog is opened, this function cannot be executed.

5–4–5 Write to ECU

Write in editing area data to ECU.
When executed, progress is displayed and when data reading in I completed, message reading "Data Write Compete Finished OK!!" is displayed.
If reading in fails, a message reading "Failed to correspond with ECU, Write Error Address: XXXX" is displayed.
When communication with other ECU is attempted, a message reading "ECU type is different" is displayed by model distinguishing check.
The respective messages are closed by the OK button.

* This function cannot be executed while the dialog is opened.
* After transferring of data, shut off the ECU power supply once. When switched on again, the transfer data become effective.

5–4–6 Data Compare

Open the Data Compare dialog.

[Data Compare Dialog]

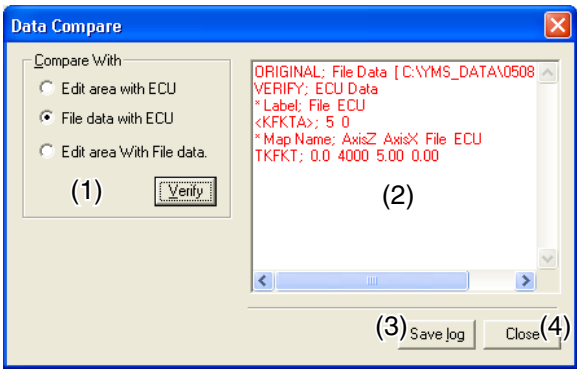


Fig. 38: Data Compare Dialog

(1) Compare With

Edit area with ECU: Making setting to compare edit area data and ECU data.

File data with ECU: Making setting to compare data of ycz File with data of ECU.

Edit area with File data: Making setting to compare data being edited with data of ycz File.

Verify button; Read in data in accordance with the setting and compare data.

(2) Status display

Press verify button to display executed results.

Display format

1st line, comparison origin data name

2nd line, comparison destination data name display

3rd line and subsequent, Label names with data differences. Displayed in the order of "comparison origin data," "comparison destination data,"

In case there are differences in Map data. "Map name,"; "Number of data differences" are displayed.

(3) Save log button

Verify results are saved in text file.

(4) Close button

Close dialog.

5–5 Window

All	Alt+A	•• Change All displays and Single displays of graph displayed on Map screen.
Monitor Dialog		•• Shift cursor to Monitor screen when Monitor screen is being displayed.

5–5–1 All

Change Graph displayed on the Map screen to All and Single. In the All status, menu checking is made. The same action is taken with F4 also.

5–5–2 Monitor Dialog

Shift cursor to Monitor screen when the Monitor screen is being displayed.

5–6 Help

Open Version dialog to display version information.

[Version dialog]

Fig. 39: Version dialog

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